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# THE CONDOR

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Ornithology

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## DEFINITE BREEDING RECORD FOR THE ALEUTIAN TERN IN SOUTHERN ALASKA

(WITH FOUR PHOTOS)

By ERNEST P. WALKER

IN THE May-June, 1920, Condor, I recorded "Probable Breeding of the Aleutian Tern in Southeastern Alaska," citing my own sight record of the birds at Situk River flats, near Yakutat, from July 18 to 23, 1916, and again at the same place the first week of July, 1917; also July 6 and 7, 1917, at the Alsek River flats (Dry Bay) about 60 miles easterly from Yakutat. Because of the rarity of this bird, and of there having been only one previous record of it on the southern Alaska coast line (at Kodiak Island, over 500 miles to the west), my sight record was seriously doubted, and properly so, as I had not taken specimens.

About the middle of August, 1921, in Icy Straits and Glacier Bay, I saw terns, in postbreeding plumage, which I was confident had not all nested in the vicinity. I collected and watched carefully, but found only the Arctic, our common form, although we were only about a hundred miles southeasterly from Dry Bay. Conditions were not sufficiently different to enable me to account for the absence of *aleutica*, if they really did occur at Dry Bay, as my sight record of 1917 had convinced me.

It was July 12, 1922, before I had an opportunity to visit the Situk flats. As this stop was early in a long cruise for general work along the southern Alaska coast line in the Biological Survey's small vessel, *Sea Otter*, I did not feel warranted in spending time to go into a thorough inquiry relative to the terns nesting at that point. Accordingly, I only spent from about 10 A. M. to 4 P. M. of that day on the flats and in their vicinity.

This tract of land is a treeless strip from half a mile to two miles wide between the timbered coastal plain and the Gulf of Alaska. Roughly, it extends for about 60 miles easterly and there is a somewhat similar country west of Yakutat Bay for a like distance. The coastal plain is cut at close intervals by rivers from mountains and glaciers not far inland. The treeless portion of the flats is composed for the most part of grass-grown alluvial flats of glacial mud, but near the beach there are sand hills with sparse herbaceous vegetation, and on the less shifting portions, an occasional small spruce. The greater area of the grass-grown flats is covered about twice a year by the highest

tides, and there are numerous pools of fresh or brackish water. The flats are cut by occasional sloughs.

The tern colonies occupied both the grass-grown flats and the sand hills. Shortly after entering the grass flats (Black Sand Island) terns came toward us and evinced some concern at our presence. There did not seem to be so many terns as I had observed in 1917, and as it was earlier in the nesting season they did not show so much concern as they would later, when the young are out. They did not come so close as would have been the case later in the season, so it was not possible to identify all the birds, but apparently about 20 to 30 per cent were *Sterna aleutica* and the remainder *S. paradisaea*. Fifteen terns were taken, of which seven were Aleutian. Search in the grass flats revealed only three tern nests, of one, two, and three eggs, respectively. The two-egg nest was constantly hovered over by an Aleutian tern and undoubtedly belonged to that bird. This nest was in an apparently abandoned, broad *Microtus* runway less than a foot above water level on a hummock about ten feet in diameter in one of the small shallow ponds. Incubation was well ad-



Fig. 35. NESTING GROUNDS OF ALEUTIAN AND ARCTIC TERNS ON STRAWBERRY ISLAND, AT MOUTH OF SITUK RIVER, NEAR YAKUTAT, ALASKA. THE EGGS WERE MAINLY IN THE UPPER HALF OF THE DRIFT-WOOD ZONE. PHOTOGRAPHED BY THE AUTHOR JUNE 12, 1922.

vanced in this set. The three-egg nest was certainly Arctic, and the one-egg nest was of uncertain identity.

On the protected, or river, side of Strawberry Island, a sandy ridge on the west side of the river, was a line of drift at the extreme high tide line. In the vicinity of this line of drift, a dozen tern nests were found in a short time by six of us.

Both the Aleutian and Arctic terns were about here and we did not make certain of the identity of the eggs. The nests were of one and two eggs, and the eggs were of two types, one being dark and slender, and the other lighter in color and more oval. The former I suspect were Aleutian. This colony was confined rather closely to the drift line at the end of the island. Some search by two of us over higher portions of the ridge and farther up the river failed to find more than an occasional tern and only two more nests. It was notice-

able, however, that the few terns seen away from the colony were, so far as we could identify them, all Aleutians. One set of one egg was in the sparse growth of strawberry, beach rye, and other herbaceous growth in a gulch a quarter of a mile from the edge of the sandy ridge, at an altitude of about fifty feet. The other set of one egg was on similar ground but not so far from the water.

The characteristics by which I most easily distinguished between the two birds at a distance were the black beak of the Aleutian, where the Arctic has red, and the white band on the forehead below the black cap, whereas the breeding plumage of the Arctic lacks this band. The plaintive note of the Aleutian is more musical and less strident and harsh than that of the Arctic.

Throughout the entire cruise of nearly three months, from Juneau in southeastern Alaska along the southerly coast line and adjacent islands to Unalaska and return, I kept constant watch for terns, hoping to find Aleutians at other points. About 80 miles westerly of Yakutat, at Icy Bay, I saw half a dozen terns at a long distance but could not identify them. Men of a Coast Survey party stationed there said there was a colony of terns some



Fig. 36. NESTING SITE OF ALEUTIAN TERN, ABOUT ONE FOOT TO THE RIGHT OF STICK IN CENTER OF PICTURE. PHOTOGRAPHED BY THE AUTHOR JUNE 12, 1922, ON THE SITUK RIVER FLATS NEAR YAKUTAT, ALASKA.

miles down the beach. Terns were scarce and did not come close enough for collection or identification at the Bering River flats. At Middleton Island, there were a few terns, June 26; but all that I identified were Arctics. In Alitak Bay, at the southern end of Kodiak Island, there was a small colony of Arctic terns, but no Aleutians were seen. Arctic terns were common at Simeonof Island at the southern end of the Shumagin group, but no Aleutians were observed. Mr. Donald H. Stevenson, of the force of the Biological Survey, who had been in False Pass until about the end of June, told me at Unalaska that Aleutian terns were nesting on Isanotski Islands in False Pass at the extreme western end of the Alaska Peninsula. On my return trip I visited the islands, July 26, but saw only one tern and that at a long distance. This was, perhaps, too late in the season, although gulls were still plentiful about

the island. Throughout the cruise we were, as a rule, not far from land, and made numerous stops in bays and reasonably favorable places for terns, but few were seen other than those mentioned.

It would seem as though the southeastern Alaska colony of this tern is



FIG. 37. NEST AND EGGS OF ALEUTIAN TERN, AT SITE SHOWN IN FIGURE 36. PHOTOGRAPHED BY THE AUTHOR JUNE 12, 1922.



FIG. 38. DEAD ALEUTIAN TERN, PHOTOGRAPHED BY THE AUTHOR ON STRAWBERRY ISLAND, AT MOUTH OF SITUK RIVER, ALASKA, JUNE 12, 1922.

wholly isolated from the remainder of its kind, although the Arctic is common and breeds as far south as Taku Glacier, near Juneau, and undoubtedly breeds at least another hundred and fifty miles farther south, near Wrangell. The

exact area occupied by the Aleutian Terns in this region remains to be determined.

In what direction, if any, does the Aleutian Tern of southeastern Alaska migrate?

If the Situk colony of terns is being reduced, it is hardly to be wondered at, for the rivers of this coast are fished by crews of natives, aliens, and some white citizens, who camp on the nesting ground of the birds. When fishing is slack or they wish a change of diet, they search for the eggs of the terns. Unfortunately, the terns can not command the sympathy that such a beautiful bird deserves, for here they feed to at least some extent on young salmon coming down the streams in the spring and early summer. Commercial fishermen are eager to lay heavy blame for destruction of fish on any other agency than their own operations, so the extent of the damage by the terns is being studied to ascertain the truth about the matter. Fox tracks were seen in the sand on Strawberry Island and no doubt the foxes take their toll of the birds.

*U. S. Biological Survey, Juneau, Alaska, February 28, 1923.*

#### NOTES ON THE SONG AND THE NEST OF THE RUBY-CROWNED KINGLET

By WINTON WEYDEMEYER

EARLY IN THE spring of 1921, in a brushy flat along an old slough near Fortine, Montana, in northeastern Lincoln County, I heard a Ruby-crowned Kinglet (*Regulus calendula*) give a song which differed from the ordinary lay of this species. The first two parts were the same as in the usual song, but the final notes were quite different and much more pleasing. The song sounded something like this: *Kezee, kezee, zeek, zeek, eek, eek, eek, eek, chiva, chiva, chiva, chiva, chiva, chiva, chiva-lete! te-telete! te-telete! te-telete! te-telete!* Nearly every day that summer and fall, except during the molting season, this song, or a portion of it, was heard in the flat. As the nesting season approached, the song was not so often heard, and usually when it was, only the last part was given. During August it was seldom heard; by September, the last part was heard occasionally; and by the middle of that month the song was again given as in the spring.

Whether or not the first part of this song was ever omitted during the nesting season I could not determine, as I was never able to distinguish between the first two parts of this song and the corresponding parts of the kinglet's ordinary song. During the nesting season the ruby-crowns of that locality, at least, usually give only the first two parts of their characteristic song. The second part is usually quite prolonged, and broken off rather suddenly: *Kezee, kezee, zeek, zeek, eek, eek, eek, chiva, chiva, chiva, chiva, chiva, chiva, chiva, chiva, chiva, chiva, chiva, chiva*—. As they also sometimes omit these parts and sing only the last part, as with the song in which a variation occurred in the final notes, it is probable that the last part of the latter song was also sometimes omitted.

As this unusual song was never heard that summer except from one partic-

ular clump of spruces in the flat, it is probable that only one ruby-crown was endowed with this special accomplishment. The following year the same bird—or one with identically the same song—remained throughout the season in a grove of spruces about a quarter of a mile from the place which it had inhabited the previous summer. I have never heard the same song anywhere else, although my brother heard it at a lake about five miles distant during the spring migration season in 1922.

On July 9, 1922, my brother and I discovered, in the grove of trees which the kinglet with the strange song had inhabited the previous season, the nest of a pair of ruby-crowns. This nest was about fifty feet from the base of a partly fallen spruce, sixty feet from the Roosevelt highway, which runs beside the flat. It contained seven nearly grown young, five of which fluttered from the nest when we disturbed them.

The nest was fourteen feet from the ground, and eighteen inches from the end of a seven-foot branch extending downward from the trunk. It was nearly pensive, being unsupported beneath, but with its sides attached to small twigs on two thickly-leaved perpendicular shoots extending downward from the limb. These shoots concealed the nest from view on all sides, while another small branch sheltered it from above.

In color, the nest looked much like the surrounding spruce foliage. In general appearance, it resembled an elongated Wright Flycatcher's nest constricted at the top. The cup was between four and four and one-half inches deep, and two and one-half inches wide at the center, narrowing toward the top to form a circular opening not more than an inch and a quarter in diameter.

Later I collected the nest and examined it more closely, in the end tearing it to pieces in order to discover how the cottony plant material and small feathers of which it was largely composed were so firmly held together. Thistle down, cotton from the catkins of the aspen, and small feathers made up a large part of the body of the nest. The outside was thickly covered with finely shredded inner bark of aspen, a few small blades of dry grass, and ground and tree mosses, with a surface covering of grayish lichens and a few small spruce twigs.

The interior of the nest was thickly lined with feathers. The sides were covered with body feathers of the Canadian Ruffed Grouse, arranged with the points of the quills down and covered by the tips of the feathers below. The tips of the uppermost feathers curved slightly inward just below the opening of the nest. At the bottom was a thick covering of breast feathers of the female mallard.

With the exception of the feathers forming the inner lining, the various materials composing the nest were strongly bound together by an intricate and extensive network of extremely fine fibers from insect cocoons. The coarser material on the outside of the nest was also held together by stiff porcupine hairs, while the bottom was further strengthened with several long horsehairs. Thus, though the nest was unusually soft and quite yielding to the touch, it was nevertheless strongly held in shape.

*State College, Bozeman, Montana, March 15, 1923.*



## BANDED BIRDS: A GRAPHIC FORM OF RECORD FOR 'REPEATS'

(WITH TWO GRAPHS)

By J. EUGENE LAW

BY MEANS of concentric circles, a comprehensive record may be made of the successive 'calls' that a banded bird makes to one's traps.

From a plate in the center which carries the number of the bird's band, rays are drawn to points on the respective circles, determined by the date of capture. The day of the month is inserted at the extremity of the ray. Octagonal number plates indicate that, at the time the bird was banded, it still wore some evidence of immaturity. Quadrangular plates are used where the bird had already reached maturity.

The circle can be segmented for the months, into twelve divisions if the bird is a resident, or fewer if its visits are only seasonal. The inner circle

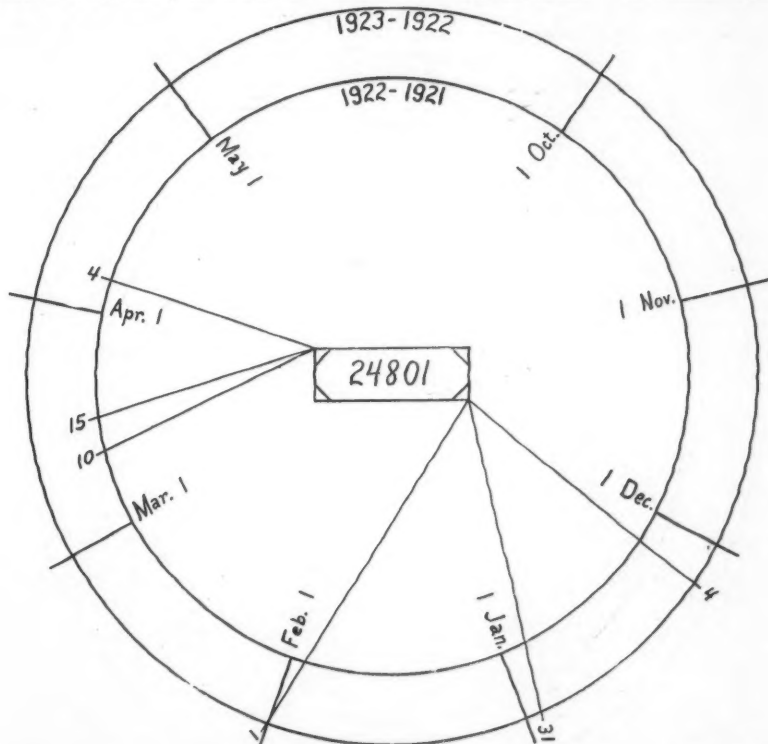


Fig. 39. GOLDEN-CROWNED SPARROW, BAND NO. 24801. BANDED AT ALTADENA, CALIFORNIA, MARCH 10, 1922; REPEATED MARCH 15, APRIL 4; RETURNED DECEMBER 12; REPEATED DECEMBER 31, 1922, AND FEBRUARY 1, 1923; KILLED ON THE LATTER DATE (SEE "A GUILTY ROAD-RUNNER," ETC., P. 133).



should be the first used and successive ones can be added as the bird returns season after season.

Obviously, where one does much trapping, expedition will demand printed sheets or cards which have five or six concentric circles and the blank plate for the number.

The accompanying sketches, submitted to illustrate this system, are 'true stories' of birds which have returned the second year. One would be cold indeed who did not feel a thrill of pleasure in regaining a bird like this Golden-crowned Sparrow which had traveled all the way to British Columbia or farther, and had returned to the selfsame spot where it was banded. When one can turn to the proper page in his notebook (I use a loose-leaf system which permits filing the sheets in numerical order of bands) and at a glance find that the bird in hand has been a frequent 'caller', the friendship grows warmer.

Aside from sentimental satisfaction, however, the proposed scheme lends itself in a most satisfactory way to intensive study of the results of quantitative banding.

*Altadena, California. April 12, 1923.*

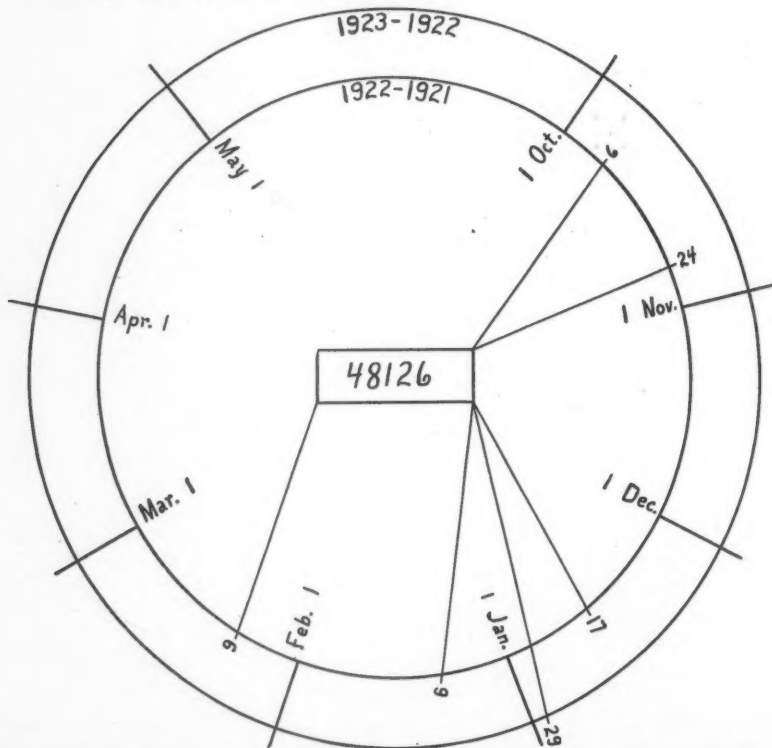


Fig. 40. GAMBEL SPARROW, BAND NO. 48126. Banded at Los Angeles, California, October 6, 1921; REPEATED October 24, December 17, 1921, January 9, February 9, 1922; RETURNED December 29, 1922.

## SOME UNUSUAL NESTING SITES OF SEVERAL ARIZONA BIRDS

(WITH THREE PHOTOS)

By F. C. WILLARD

AFTER collecting the eggs of certain species for a number of years one learns to know when he is looking in the right places to find them. To stumble, then, upon a nest in an unlooked-for situation gives one a considerable thrill. There are a number of Arizona species which have been the means of giving me that thrill, and it may interest others to hear of some of their eccentricities.

The Cactus Wren (*Helodytes brunneicapillus couesi*) ordinarily chooses an open site in a bush, small tree, cactus, or yucca. Among the unusual sites in which I have found nests of this species are the following. One pair built for several years in the hollow cornice of a schoolhouse. The entrance was through a hole cut one winter by a visiting flicker. Another site was in an old woodpecker's nesting cavity which was twenty-five feet up in a large sycamore, one of a line of these trees extending out from the foothills of the Huachuca Mountains. A broken-out cavity in a sahuaro cactus is also rather out of the ordinary for a Cactus Wren to choose as a nesting site. Previous to 1916 I had found but two or three so placed, but the season of 1922 I have found half a dozen occupied nests in this cactus. During the intervening period I have not been in Arizona and so do not know whether the extra number was just a peculiarity of the one season or whether the habit is growing on this wren.

The House Finch (*Carpodacus mexicanus frontalis*) builds as a usual thing in the open, in vines growing around houses, in trees of many kinds, in yuccas, and in cactus. This year I was surprised to see a House Finch fly from a woodpecker hole about thirty feet up in a large sycamore, and climbed up to find its nest cosily placed so that the bird could sit and look out. On the San Pedro River are some large ranches where much hay is raised. At one of these a large stack is always built in a certain deserted ranch yard and a pair of House Finches have had their nest in it every time I have visited the spot. This season, after a lapse of six years, I visited the place again, in company with Mr. A. C. Bent, and remarked as we came to the stack that I always used to find a finch's nest in it "just about here", and, as I touched the hay, out flew Madame Finch from her nest, which held five eggs. In passing, may I remark that this was one of the few places where I could count on getting a set of five eggs. Most of the finches in that region lay four. A similar site was in the grass-thatched roof of a shed. Old oriole nests are so frequently used as hardly to come under the heading of unusual nesting sites.

A Canyon Towhee (*Pipilo fuscus mesoleucus*) likes best a thick bush, one with thorns preferred; but one pair chose a ledge inside a porch near the roof, such a place as a robin dearly loves. Another built in an old splint lunch basket which had been tossed aside and hung bottom up in a thorny bush. For several years two pairs used to build near the extreme tops of some thickly leaved cottonwood trees at my uncle's home in Tombstone. These nests were thirty feet or more from the ground. After the trees died, one pair took to building in the ivy and honeysuckle which grew over the walls of the house. I found an unfinished nest in one of the vines there this year.

An Abert Towhee (*Pipilo aberti*) nest, twelve feet up in a cavity near the top of a rotten cottonwood stump, is enough out of the ordinary to call for mention. The usual choice is in bushes or among willow sprouts.

The Rock Wren (*Salpinctes obsoletus obsoletus*) normally chooses a hole in an old adobe wall or in the perpendicular bank of an arroyo; but one pair chose the drawer of a small table which stood inside a deserted house. The drawer was open a couple of inches and offered a fine place for a nest.

The Baird Wren (*Thryomanes bewicki bairdi*) likes a natural cavity in an oak tree but is quick to take advantage of other snug situations. Between the vanes of the fan of a prospector's forge was the place chosen by one pair. Another made use of a pocket formed by a burlap awning which had torn loose at one corner. This species will also take kindly to cans and boxes put up particularly for its benefit.



Fig. 41. UNUSUAL NEST SITE OF THE CANYON TOWHEE.

Thrashers seem more inclined always to chose the normal situation, so I associate Palmer Thrasher (*Toxostoma curvirostre palmeri*) with chollas. Imagine my surprise to see one fly from a hole fifteen feet up in a large sycamore, and on climbing up to find that she had a nest there full of young. Chollas were not uncommon in that vicinity, either. Sets of four eggs of this thrasher are very uncommon, yet one year I took two four-egg sets one day from nests built in clumps of mistletoe.

Quail are rather promiscuous in their choice of a nesting place, but usually they like to have something good and solid under them. However, while hunting up Sabino Wash near Tucson one year, I looked into a Palmer Thrasher's nest several feet up in a cholla and found a female Gambel Quail (*Lophortyx gambeli*) looking back at me. She had seventeen heavily incubated eggs under her. On several occasions I have found Palmer Thrasher's nests with from one

to four Gambel Quail eggs mingled with the rightful owner's, but this is the only time I ever found a full set and the parent there.

Another bird which likes good solid ground under its nest is the Arizona Junco (*Junco phaeonotus palliatus*), yet I once found a set of incubated eggs fifteen feet up in a hole in a dead pine branch where the year before I had dug out the nest of a Chestnut-backed Bluebird (*Sialia mexicana bairdi*). A still more surprising find was a nest of one of these juncos nine feet up in a small oak tree alongside a well-used trail. The nest was placed on a small branch and against the trunk. The bird flushed as I passed. During the years from 1910 to 1916 a pair also built in a small Spanish bayonet which grew beside a trail at Berner's in Ramsay Canyon of the Huachuca Mountains. When cats were introduced at this place, they made short work of this pair.

Mr. Bent and I occupied a cabin here during part of May, 1922, and a Painted Redstart (*Setophaga picta*) built its nest in the ivy which covered one



Fig. 42. ABERT TOWHEE'S NEST IN A COTTONWOOD STUMP.

wall. This nest was close up under the eaves and had about twice the usual amount of rough nesting material in it. A hollow on a bank with some dry grass hanging over it is the common situation.

An old woodpecker hole or a natural cavity of similar size is the usual home of the Ash-throated Flycatcher (*Myiarchus cinerascens cinerascens*). A kick against a discarded joint of stovepipe lying on the ground flushed one of these birds from a nest containing five fresh eggs. There was no cover at all, just a small greasewood bush against which the pipe was lodged and which kept it from rolling down the rocky hill on which it lay.

Under the drooping leaves of a soapweed or a tall Spanish bayonet is the proper place to look for nests of the Scott Oriole (*Icterus parisorum*), and so I was surprised indeed to flush one from her nest when I climbed to the top of a

small pine tree where I had seen what looked like a female tanager enter. The nest held four small young. It was nearly forty feet from the ground and was built of the usual yucca fibres, but was attached to a cluster of pine needles, among which it rested instead of hanging, as is the usual position. Later, I found another nest in a small pine tree. This one was but twelve feet up and hung from a fork in somewhat the fashion of a vireo's nest, but still with some supporting needles around it and partially woven into the sides.

The Song Sparrow sometimes deserts the ground and low bushes in favor of a tree, and the desert subspecies (*Melospiza melodia fallax*) also has this trait. One nest was built fifteen feet up in a large willow tree, on a horizontal branch. The bird was on the nest when I found it and remained until I was nearly up to



Fig. 43. GAMBEL QUAIL'S EGGS IN A PALMER THRASHER'S NEST.

it. When she flushed and I looked in, what a nestful I found! There were four of the song sparrow's eggs and four of the Long-tailed Chat (*Icteria virens longicauda*), quite a remarkable combination.

As a climax, however, an experience which Mr. Bent and I had in the mesquite forest this year is the best. He saw a Gila Woodpecker (*Centurus uropygialis*) leave a hole about twenty feet up in a mesquite tree, and I climbed up to cut it out. What was our surprise when I pulled out an Elf Owl (*Micropallas whitneyi*), and our still greater surprise when I reached in again and found a set of Elf Owl eggs! All the while the woodpecker was raising the usual noisy rumpus at having its nest rifled, and it was the only woodpecker which *did* put in an appearance or take any interest in the proceedings. We had held onto the owl and now Mr. Bent shot the woodpecker. It proved to be a male and the

owl was a female. The eggs held small embryos. Here is a romance for those who choose, or a biological question for those who wish to speculate. At least it is interesting as the only departure I have ever known from the Elf Owl's regular habit of nesting in the sahuaro cactus, many of which were within half a mile and eminently suitable, as we found when collecting among them the next day.

*Farmingdale, Long Island, New York, April 18, 1923.*

### HOW IS THIS FOR CONSERVATION OF WILD LIFE?

By JOSEPH MAILLIARD

IN Natural History (Journal of the American Museum of Natural History), vol. 23, no. 1, January-February, 1923, appears an article by Rollo H. Beek, entitled "The Voyage of the 'France': A Later-day Trip to the Scene of the Bounty Mutiny and to Other Islands of the South Pacific."

In his account of this voyage Mr. Beek says, on page 40: "In the way of birds Henderson [Island] yielded a rail, a dove and a warbler, as well as the usual sea birds, but travel over the island proved so difficult that most of our collecting was necessarily done near shore. . . . *The last three goats* purchased for food in Rapa *we liberated on Henderson*, but they chose to remain close to the landing place until our departure. Future visitors should have less trouble than we cutting trails through the tangled vines and shrubbery if the goats use their freedom to good advantage in nibbling their way to the interior." Yet, on the next page, he says: "On one of the small uninhabited islands where goats were kept, *the surprising capture of a rail was made*. There was hardly any cover on the island for a bird with the ordinary habits of the rails as we knew them in Polynesia, but a few had managed to exist in spite of the destruction of the vegetation." Again, on page 43, Beek says: "After cleaning the vessel and getting a fresh stock of provisions we headed out to the eastward to visit other unknown atolls and secure *before their extermination* examples of their dwindling fauna."

It seems almost incredible that such a veteran collector as Rollo H. Beek, in the employ of one of the best known museums in the world, should have done what he evidently knew must mean the ultimate extermination of certain species of birds, and most probably of other and interesting forms of animal and plant life! His own words, quoted above, prove that he knew this from previous experience, and yet he deliberately established upon Henderson Island the machinery to produce such a deplorable result.

It hardly appears reasonable to assume that the three goats liberated were non-breeders, for the reason that on a tropical island of such an extent as this, it being about five miles long by two and one-half miles wide, such a limited

<sup>1</sup>The italics are mine, here and below.



number as three goats would make but little impression on the growth of the "tangled mass of vines and shrubbery," mentioned as being such a barrier to the progress of an explorer.

If it turns out that these three goats were non-breeders, no harm has been done, and I shall be glad to offer my apologies to Mr. Beek for the appearance of this paper, which will then be of no use unless as a warning to others who might be inclined to adopt the 'goat' method of preparing islands for future exploration.

*California Academy of Sciences, San Francisco, March 30, 1923.*

#### ADDITIONAL NOTES FROM THE COASTAL ISLANDS OF SOUTHERN CALIFORNIA

By DONALD R. DICKEY and A. J. VAN ROSSEM

THE FACT that our knowledge of insular birds must of necessity grow by fragmentary steps serves as the motive for the publication of the following notes, gathered by the authors during various trips to the coastal islands of southern California. Only those species for which new data have recently become available are touched upon, our intention being simply to add a further modicum to our understanding of the resident and visitant birds of these islands.

*Colymbus auritus* Linnaeus. Horned Grebe. A male of this species, taken January 6, 1920, at Camp Banning, Santa Catalina Island, constitutes, we believe, the first record for Santa Catalina. W. L. Dawson (Condor, xvii, 1915, p. 204) saw this species at Santa Cruz in late April, 1915, but took no specimens.

*Larus heermanni* Cassin. Heermann Gull. An adult female taken January 30, 1920, at Santa Catalina, has the aberrant white primary coverts recently noted in individuals of this species by various observers. A bird seen at Santa Catalina February 17, 1921, displayed this same conspicuous covert-pattern. The consensus of present opinion seems to regard this condition as merely an occasional mutation, or 'sport.' Just how sporadic the occurrence really is must be determined by further observation.

*Ardea herodias hyperonca* Oberholser. California Great Blue Heron. A juvenal male taken August 20, and an adult male taken August 21, 1922, at Prisoner's Harbor, Santa Cruz Island, give the following measurements:

	Wing	Tail	Tarsus	Middle toe without claw	Culmen
K 532, ♂ juv.	485	178	194	110	149
K 533, ♂ ad.	490	179	184	107	144

The measurements of these two birds, taken in conjunction with those of the San Clemente and Santa Catalina specimens recorded by A. B. Howell (Pac. Coast Avif. no. 12, 1917, p. 44), seem to cast such grave doubt upon the validity of *Ardea herodias olgista* as a separable insular race, distinguishable by mensural characters, that we prefer to allocate these island birds to the mainland race, *Ardea herodias hyperonca*.

*Fulica americana* Gmelin. Coot. A pair of coots, accompanied by several nearly grown young, was often seen about the tule-fringed pond at Prisoner's Harbor, Santa Cruz Island, from August 18 to 21, 1922. Although recorded in winter from the same locality (Linton, Condor, x, 1908, p. 126), there seems to be no previous breeding record for the islands.



*Sphyrapicus ruber daggetti* Grinnell. Sierra Red-breasted Sapsucker. While this bird has been recorded from Santa Catalina (Harris, Condor, xxi, 1919, p. 172), no birds appear to have been actually taken on any of the islands except San Clemente. It therefore seems advisable to record an adult female, collected January 29, 1920, in the cottonwoods at Camp Banning, Santa Catalina Island. On Santa Cruz, one was noted in a pepper tree at Prisoner's Harbor, March 21, 1920, but was not secured. Two days later, however, a bird was collected in the same locality.

*Colaptes cafer collaris* Vigors. Red-shafted Flicker. Flickers have been recorded from both Santa Cruz and Santa Catalina by various observers. A. B. Howell (Pac. Coast Avif. no. 12, 1917, p. 61) believed them resident on Santa Cruz, although he had obviously overlooked the specific nesting record given for that island by Beck (Condor, i, 1899, p. 86). Several old nest holes were noted during January, 1920, in the cottonwoods in the vicinity of Camp Banning, Santa Catalina Island. In April of the same year, many old nest holes were also found on Santa Cruz Island. It has been suggested (Howell, Pac. Coast Avif. no. 12, 1917, p. 61) that the flickers of Santa Cruz were gradually acquiring a yellow phase, thus paralleling the similar change which has developed in the San Clemente House Finch. However, in March and April, 1920, flickers were extremely abundant and quite tame on Santa Cruz. Yet out of several hundred birds seen at close range only one displayed the yellow shafting which is so conspicuous in flight. The five birds which were collected may, of course, have been migrants, but they are typical of *Colaptes cafer collaris* of the adjacent mainland.

*Nucifraga columbiana* (Wilson). Clark Nutcracker. This species has been recorded from Santa Cruz by Ralph Hoffmann (Condor, xxii, 1920, p. 187), but further remarks as to the manner of its occurrence on the island may not be amiss. In March and April, 1920, these birds were found wherever pines occur, from the seashore to the summit of the island. They could not have been called common, yet every day spent in suitable country would result in hearing or seeing five or six birds. Usually they ranged in two's or three's, but single birds were by no means rare. Several residents stated that nutcrackers had been present for the past two years, but no exact dates as to the time of arrival, nor hint of nesting activity could be obtained. They are known locally as 'walnut birds' because of their partiality for walnuts, both green and ripe. The crops of the five taken were packed with the white meats of shelled pine nuts. None of the five showed a trace of breeding activity. Two were certainly immatures of the previous year, and two more were as certainly adults, with the age of the fifth indeterminable. No nutcrackers were found in August, 1922, and one of the residents stated in conversation at that time that none had been seen for several months.

*Carpodacus purpureus californicus* Baird. California Purple Finch. On Santa Catalina, February 2, 1920, a male of this form in full red plumage was collected, and at least two more purple finches were heard the same day. On Santa Cruz, March 29, 1920, a female, accompanied by a red male, was taken in a grove of oaks about 500 feet above the shore. A male in streaked plumage was taken the same day from the tip of a tall dead pine at an elevation of about 1500 feet. In August, 1922, no purple finches whatever were found on Santa Cruz.

*Loxia curvirostra stricklandi* Ridgway. Mexican Crossbill. The presence of crossbills on Santa Cruz Island is one of the most interesting items unearthed during the many years of work which has been done on the Santa Barbara Islands. They were first discovered in late April and early May, 1911, by Howell and van Rossem (Pac. Coast Avif. no. 12, 1917, p. 75), when several small flocks were seen and four birds secured. This small series was hardly adequate to serve as a basis for satisfactory diagnosis. One of the main objects of the 1920 trip to Santa Cruz was to secure additional material. The 21 birds taken were submitted to Dr. H. C. Oberholser for determination. He states they are unmistakably *Loxia curvirostra stricklandi* and not *bendirei*. No breeding activity was noticeable in any of the specimens taken, but males were seen courting on April 3. The male birds attracted the attention of the females by squatting, with tail spread, on a limb, and uttering a rather weak, linnet-like twittering. The territory preferred by the birds was a burnt-land pine area on which fire had killed the trees without destroying their cones. The latter had been opened by the heat, thus affording the birds easy access to the seed. The species was ordinarily quite wild, so

much so that until April 1 only two specimens had been obtained despite many days of arduous search. On this date, however, a feeding flock which seemed absolutely fearless was located, seven birds being taken before the remaining score or more flew away. On April 3, a similar flock was encountered and 11 birds secured. The only single birds noted were two individuals seen on April 1. Crossbills were often found associating with Pine Siskins, and several flocks of the former were located by hearing the characteristic siskin notes. On April 3 both sexes were noticed biting and mouthing small twigs and branches. No mention of crossbills was made by Ralph Hoffmann (Condor, xxii, 1920, p. 187) except that under *Nucifraga columbiana* he makes the statement that "crossbills and Red-breasted Nuthatches are already resident." The basis for this assertion regarding crossbills was evidently taken from A. B. Howell, who stated (Pac. Coast Avif. no. 12, 1917, p. 75) that he "believed" this to be the case. Van Rossem, accompanied by Dr. Loye Miller and Alden Miller, visited Santa Cruz August 18 to 21, 1922, for the express purpose of securing additional evidence on this point. Although weather conditions were ideal, and ripe seed cones were present in sufficient quantity to support a large number of birds, no trace of crossbills could be found. Negative evidence is always unsatisfactory, and the present case is no exception, but it seems logical to suppose that, had crossbills been present, some few at least would have been detected, especially as their numbers at this season would be augmented by the young of the year. All we can state is that crossbills were apparently absent at this time from the area in which they were so abundant during the spring months of 1911 and 1920. They certainly were to be expected in this same area during the summer if they are resident birds of this island. In any event, belief in their status as a local breeding species must be held in abeyance pending positive proof.

*Chondestes grammacus strigatus* Swainson. Western Lark Sparrow. The female bird of a mated pair was taken at Prisoner's Harbor, Santa Cruz Island, March 23, 1920.

*Zonotrichia leucophrys nuttalli* Ridgway. Nuttall Sparrow. A female of the year was taken at Camp Banning, Santa Catalina Island, January 29, 1920. This is apparently the first record for Santa Catalina. This form has already been recorded by Hoffmann from Santa Cruz Island (Condor, xxii, 1920, p. 187). We found it fairly common on that island during March, 1920, and collected several specimens.

*Aimophila obscura*, new species

Santa Cruz Island Sparrow

*Type*.—Female adult; no. K 516, collection of Donald R. Dickey; Prisoner's Harbor, Santa Cruz Island, California; August 19, 1922; collected by A. J. van Rossem; original no. 7198.

*Diagnosis*.—Darker and less rufescent than either *Aimophila ruficeps ruficeps* or *A. r. canescens* of the neighboring mainland; central streaking of the dorsal feathers much darker and less rusty; maxillary streaks heavier; bill heavier and more swollen at base; tarsi and feet averaging slightly longer and heavier.

*Range*.—Common in suitable localities on Santa Cruz Island. Probably present on Santa Catalina Island.

*Remarks*.—Two specimens from Santa Catalina collected in 1863 by J. G. Cooper, and now in the Museum of Vertebrate Zoology, have the large bills and heavy feet characteristic of the birds of Santa Cruz Island. They are therefore assigned to *Aimophila obscura*, but only upon presumptive grounds, since they are too faded and worn to be of use for color comparison.

It is deemed that the complete isolation of this insular form calls for the employment of a binomial designation, despite the comparative external agreement of *Aimophila obscura* with nearby races of *A. ruficeps*. The use of the trinomial would seem to imply a genetic relationship such as the writers are loath to base on even close present-day resemblance.

*Passerella iliaca*, subsp. A large series of fox sparrows taken on Santa Catalina and Santa Cruz islands during January, February, and March, 1920, were sent to Mr. H. S. Swarth for determination. With the exception of one specimen of *insularis* taken at Santa Catalina, January 26, 1920, they were all pronounced *sinuosa*. In the several weeks spent on these islands during the above months, not one individual of the "*schistacea* group" was encountered. A. B. Howell (Pac. Coast Avif. no. 12, 1917, p. 84)

found *megarhyncha* the most abundant fox sparrow on the islands, with *insularis* a close second. This may be the case in normal years, but as before stated no single individual of the "*schistacea* group" was met with in 1920. In this connection it is interesting to note the extreme abundance of *sinuosa* on the islands during the time covered by our observations. In no mainland locality with which we are familiar has this race been found in such numbers.

*Sitta carolinensis aculeata* Cassin. Slender-billed Nuthatch. On April 1, 1920, while stalking a flock of crossbills in a dense grove of pines on Santa Cruz Island, a momentary glimpse of a pair of nuthatches of this species was obtained. The female was collected, but the male proved too shy to be secured. Search for the species later in the year in the same area proved futile.

*Sitta canadensis* Linnaeus. Red-breasted Nuthatch. Oddly enough, not one Red-breasted Nuthatch was found on Santa Cruz Island in August, 1922, although the species is common enough in that locality in the spring, and has even been seen excavating what was presumed to be a nest hole (Howell, Pac. Coast Avif. no. 12, 1917, p. 99).

*Hylocichla guttata*, subsps. Of 10 hermit thrushes taken on Santa Catalina in January, 1920, 9 proved to be *Hylocichla guttata nanus* and one *Hylocichla guttata guttata*. By contrast, of 7 birds taken during March, 1920, on Santa Cruz Island, 6 are referable to *guttata* while only one is referable to *nanus*.

*Planesticus migratorius propinquus* (Ridgway). Western Robin. The Western Robin has already been recorded from Santa Catalina by Harry Harris (Condor, xxi, 1919, p. 172). In view of the scarcity of records for this island, it is perhaps pardonable to record an additional adult female, taken at White's Landing, January 24, 1920. On Santa Cruz Island, a flock of about 10 birds, from which a female was collected, was found in the oaks near the main ranch, back of Prisoner's Harbor, March 30, 1920. Mr. Fred Caire, the owner of the island, as well as several residents, stated that robins were present by hundreds during the early winter of that year.

Pasadena, California, March 26, 1923.

## ANIMAL AGGREGATIONS: A REQUEST FOR INFORMATION

By W. C. ALLEE

IT IS generally assumed at the present time that the gregarious or social habit in animals is at basis an outgrowth of aggregations resulting from the association of young individuals with one or both parents. In special cases or at critical periods in social evolution, it is assumed that the period of association becomes lengthened and the family comes to react as a unit under many conditions. Some such explanation for the origin of human society is current among sociologists who derive organized society from the family by way of the clan.

Students of social life in insects, especially as it exists in wasps, bees, and ants, usually adopt a similar explanation for the origin of the social habit. Thus Wheeler in his studies on ants and more recently in his review of the social life among insects regards the insect colony as a result of the extension of the natural affiliation of mother and offspring. He regards the bonds that hold mother and daughter together in the initial stages of insect colony formation as identical with those which bind human societies, namely, hunger and affection.

Opposed to this more usual view is the one proposed by Herbert Spencer, which is that colony life arose from the consociation of adult individuals for co-

operative purposes, as among wolves and among various insects which collect under certain circumstances. From these instances, Spencer suggests that in some cases permanent swarms arise and that natural selection will establish such of these groupings as are advantageous. In terms of human society, this view would stress the importance of the gang rather than the family as a preliminary step in the evolution of the social habit. It is important to note that the gang cuts across family lines in its formation.

The formation of such aggregations is widespread in nature. They are frequently brought about by those reactions of animals which tend to bring them into environmental conditions that are favorable for individual preservation. These reactions occur frequently in connection with hibernation or aestivation and are illustrated by the formation of large aggregations of land isopods in protected positions during periods of cold or of drought.

Such congregations also frequently occur when animals are exposed to unusual and perhaps adverse conditions such as develop when animals are brought from nature into the laboratory, as happens, for example, in the cases of may-fly nymphs, brittle starfish, earthworms, frogs, etc. Again they occur when animals become trapped, so to speak, in a given locality by the conditions encountered, as when paramecia are trapped in a region where the water is more acid or when animals negative to light collect in restricted regions of shade.

The association of animals in large groups also frequently occurs during the breeding season. Under these conditions many animals form closely associated clumps or clusters as may be found in studying fresh-water isopods or snakes. Other animals collect in less dense groups, such as schools of fish or herds of deer.

Wheeler expresses the usual attitude toward these consociations when, after describing some instances of aggregation in ants, he dismisses them as either entirely fortuitous instances which would occur wherever ants might be abundant and places of refuge scanty, or as the manifestation of highly developed social proclivities, and not of such proclivities in process of development.

It would seem that observation on bird behavior should furnish much interesting information on this problem since in many species there is periodic formation and disintegration of flocks. Observations on such points as the following are significant: When birds form flocks, are they primarily family affairs? That is to say, do the members of families remain together and thus form the social group which, beginning as a family unit, grows into a flock by the addition of other families which may or may not be close blood relatives? Or, on the other hand, is flock formation comparable with gang formation which disregards family lines? Putting this more specifically one would ask, Are the fall migration flocks formed by the congregation of families or of individuals?

Is it possibly true that both processes are involved in bird behavior in general? If so, are there species of birds which combine both types of flock formation?

Spencer's theory would require that the flock be formed by the coming together of individuals; the more accepted theory would emphasize the importance of the family. The question at hand is, Which of these theories actually holds true in the seasonally recurring development of avian societies?

There is another aspect of the problem of social life similarly in need of

good field observation. It is concerned with the difference in behavior shown by animals when they are members of flocks and when they are alone or relatively isolated. This question has been much discussed with particular reference to problems of mob psychology, but there is still need of observation on the subject, particularly with respect to such highly specialized animals as birds.

In conclusion, I must explain that I am not an ornithologist. My interest in the animal kingdom is so extended that as yet I have been unable to specialize on any one group in making observations. Consequently I request correspondence on either of these points and I should be especially interested to see, summarized in print, the observations of students of bird life which have a bearing on these matters.

*Zoology Building, The University of Chicago, Chicago, Illinois, March 18, 1923.*

### FROM FIELD AND STUDY

**A Note on the Voice of the Ruddy Duck.**—The queried statement, "Voiceless?" in the excellent account of the Ruddy Duck (*Erismatura jamaicensis*) given in Grinnell, Bryant, and Storer's *Game Birds of California*, suggests that the following may be of interest.

The male in the breeding season has a peculiar and most unducklike note. It is a liquid and faintly explosive sound given at the completion of the characteristic bobbing of the head and neck. Possibly "dook," or "gook," comes as close as it is possible to write it. The sound made by a bubble of marsh gas as it reaches the surface is an almost exactly similar noise. This note is inaudible more than a few yards away.

While I was in a blind one day in the early fall, a female Ruddy and a fully grown juvenile swam past me at only a few feet distance. The young bird was giving at frequent intervals a low but emphatic "quack".—A. J. VAN ROSSEM, *Pasadena, California, March 26, 1923.*

**Black Phoebes and House Finches in Joint Use of a Nest.**—At the time of a visit, May 11-14, 1922, to Oakzanita Lodge resort in the Cuyamaca region of San Diego County, California, there came to the writer's attention a rather surprising state of affairs in avian home-life, with a pair of Black Phoebes (*Sayornis nigricans*) and a pair of House Finches (*Carpodacus mexicanus frontalis*) as principals. The former, whose nest had been built under the projecting roof of an outlying cottage,—proclaimed, by the way, as the "Dove-Cote," where might have been expected only peace and contentment—were experiencing so determined an intrusion on the part of the latter that not only had the nest become a goal of contention, but as a result the phoebes were subjected to intermittent possession and forced to share its use with the finches. Just why the intruders should have disregarded seemingly well-established priority and persistently encroached upon the phoebes' domain has remained an unsolved problem.

Coincident with the finding of the nest, on May 12, the presence of a female finch and absence of the phoebes attracted particular notice, and investigation of its contents disclosed one egg of the finch and two of the phoebe. The logical supposition that the rightful owners had been completely driven away proved erroneous when later in the day the female phoebe was observed on the nest. At an early hour the next morning, however, the finches had already resumed proprietorship, and the phoebes, if in the immediate neighborhood, were not to be seen. During the afternoon the situation was similarly reversed, the male phoebe solicitously flying about while his mate occupied the nest. The morning of the 14th found the phoebes departed and



the finches again in control of the premises. Unfortunately, it was impossible to make uninterrupted observation, so that circumstances connected with the withdrawal of the phoebes and advent of the finches, or vice versa, could not be ascertained.

Upon leaving Oakzanita on the 14th, it was a matter of conjecture as to which would eventually retire or how long the joint use of the nest could continue. There was no further opportunity to take note of activities until almost a week later. On the 20th the nest contained the remarkable number of eleven eggs, six of the phoebe and five of the finch, but had been deserted by both pairs. The finches had in no way, apparently, attempted to add lining or to alter the nest. It might be of interest to record that the only trace of incubation evidenced in the entire group of eleven was in one of the two phoebe eggs that happened to be sparingly dotted with reddish brown, and were thus identified as having been laid at least later than the two first examined on the 12th, both of which were unmarked.

The use of Black Phoebe nests by House Finches, often supplemented with new material, is not at all of rare occurrence, this chiefly, if not wholly, being found where buildings, bridges, and like structures have offered locations. A goodly majority of the nests thus utilized have doubtless fully served their original purpose, but in some cases, considering the instance cited, such occupancy may have resulted from aggressive tactics that compelled abandonment.—HAROLD M. HOLLAND, *Galesburg, Illinois, April 9, 1923.*



Fig. 44.

**An Albino Western Robin in Seattle.**—On the afternoon of March 20, 1923, I observed an albino robin on the campus of the University of Washington. It was one of a flock of some thirty robins, all of which were of the western variety (*Planesticus migratorius propinquus*), and it is safe to say it belonged to the same race. Its wings and back were entirely white, while its head and tail were a light gray. In most lights the tail looked white also, but when seen from above it appeared to be only a degree lighter than the head. The breast was cinnamon-rufous, but was of a perceptibly lighter shade than those of the other robins in the flock. Its eyes were of normal color and there was no trace of dark markings on the throat. It was still on the campus on March 24.—HORACE GUNTHER, *University of Washington, Seattle, Washington, March 26, 1923.*

**The Knot in Southern California.**—The Knot (*Tringa canutus*), always a rarity on our coast, is almost unknown here in spring. The most recent record, and the second, I believe, in ten years or more, is the capture of two on April 24 in a tide-marsh near Sunset Beach, Orange County, by a collector from this Museum. The birds were in a flock of five or six, feeding on a mud bank at low tide.—L. E. WYMAN, *Los Angeles Museum, Los Angeles, California, May 3, 1923.*

**Ants Destructive to Bird Life.**—The ornithologist visiting San Diego is usually impressed with the surprising scarcity of nesting birds in Balboa Park, though the surroundings seem to be ideal. It was not until I had been at the San Diego Museum of Natural History a year, that the possible explanation was presented. A swarm of bees that had been installed as an exhibit in the museum was destroyed in a few days by an insignificant ant. This ant, I was told, had in all probability reached our shores with some of the trees or shrubs brought in from South America. It was known as the Argentine Ant.

Such was my introduction to a pest that will doubtless cause immense loss to the state unless some check is soon discovered. A second swarm of bees was destroyed in six days, though all possible defenses were used. A third swarm of bees, in

possession of one of the towers of the building, nearly one hundred feet from the ground, was killed and the honey taken by ants that formed a line from the ground to the top of the tower and, by their overwhelming number, overcame the bees. If bees were killed by ants, why not young birds? Several nests of the Anna Hummingbird (*Calypte anna*) were located and kept under observation and in every case the young were killed and eaten within two or three days of the time they hatched.

A colony of Cliff Swallows (*Petrochelidon lunifrons*) that had nested in one of the towers was visited and some twenty-five dead nestlings found on the roof under the nests. Several nests that seemed to have been used and abandoned were torn down, and in most of them were found dead young covered with ants, while a steady column of the insects marched from the top of the tower to the ground.

Several nests of Green-backed Goldfinch (*Astragalinus psaltria hesperophilus*) had been abandoned before the eggs hatched, the ants that were swarming over the tree and nest, doubtless being the cause.

Nests of *Pipilo* located in the shrubbery about the grounds suffered, as well as nests of all the other local species, and the only young birds that I saw about the grounds during two seasons were one or two broods of Green-backed Goldfinches and several of the Valley Quail (*Lophortyx californica vallicola*). Either these two nest in the more open ground where the ants are less abundant, or they are more resistant, for broods of nestlings were not uncommon and of normal size. Domestic fowls, however, suffer a heavy loss.

I was told by a member of the Park Board, living in Balboa Park, that he was unable to raise chickens, as the ants destroyed the chicks before they could emerge from the egg, entering the shell as soon as it was pipped and killing the occupant by sheer force of numbers, a statement easily to be believed by any that have seen the pest in action.

While the Argentine ant does not seem to extend its range rapidly, it is well established in many parts of southern California, and in such sections is certainly a menace to be seriously considered.—A. W. ANTHONY, *San Diego, California, March 26, 1923.*

**Early Nesting of Nuttall Sparrow in Golden Gate Park.**—In *The Condor*, vol. 18, no. 2, p. 44, Milton S. Ray mentions having found nests of the Nuttall Sparrow (*Zonotrichia leucophrys nuttalli*), with fresh eggs, in Golden Gate Park, San Francisco, as early as April 1. The most unusual drought of the past six weeks may have induced the birds to commence their spring housekeeping at an earlier date this year than is their ordinary custom. On March 28 (1923) some boys, who come regularly to the Academy for assistance in certain matters in which they are interested, reported the finding of a nest of this species which already contained two eggs. The bush in which this nest is built is in plain view from my desk and one of the birds was sitting upon the eggs when the nest was shown to me.—JOSEPH MAILLIARD, *California Academy of Sciences, San Francisco, March 30, 1923.*

**A Guilty Road-runner: Circumstantial Evidence.**—February 1, 1923, was one of the bleakest, coldest mornings of the winter, following a stormy night which had brought the snow nearly to the base of the mountains. Our home stands at the upper edge of the mesa slope near where the mountains sink into it. An overcast sky kept things chilled. On such a morning insect and reptilian life is conspicuously absent.

A sparrow trap (Biological Survey type) set in the native brush had been helping me with banding. When I abruptly came into view of the trap, at 11:30 A. M., I saw a Road-runner (*Geococcyx californianus*) crouched against the outside, its attitude that of an individual surprised at some deviltry. It looked at me in wide-eyed terror for a moment and then ran into the brush and out of sight.

Curiosity took me toward the trap at once. Better had I retired instantly to a long-distance view and awaited developments. When I saw a sparrow on its back in the trap, however, I 'ducked' into the garage near by and ever so slightly pulled open the drawn shade so that my eye had a good view of the trap. Almost at once the Road-



runner came back and was pulling at the sparrow through the  $\frac{3}{4}$  inch mesh of the trap; then, suddenly, its keen eye was looking squarely into mine, and away it went. This time it did not return although I watched for some time.

Later the sparrow was placed opposite the funnel entrance in the hope of enticing the Road-runner into the trap, but there was no evidence that it ever returned again.

On plucking the victim, a Golden-crowned Sparrow (*Zonotrichia coronata*), wearing my band no. 24801 (see its record on page 119), no bruises were found except on its skull, which, without having been pierced or broken, had the entire brain area dark with blood infusion. Nor had the skin of the crown been broken.

While I did not see the Road-runner do the killing, I suspect that it would have a hard time clearing itself, but might plead excessive hunger owing to the apparent difficulty in finding its natural food on such a morning.—J. EUGENE LAW, *Altadena, California, April 12, 1923.*

**Another Musical Brown Towhee.**—In my article, "Evidence of Musical 'Taste' in the Brown Towhee," which appeared in the November-December, 1922, issue of The Condor, I put on record two instances that had come under my personal observation of the Brown Towhee's addition of some musical syllables at the end of its regular song. I suggested the idea that this song elaboration indicated a racial rather than an individual tendency on the part of *Pipilo crissalis*.

Early this afternoon as I was passing a clump of shrubbery just west of the Stanford University Museum I was abruptly halted at hearing a Brown Towhee song which sounded like *tip—tip—tip—ip-prrrrr, treh-treh-treh*. The added syllables were not unmistakable imitations of any bird sounds that I know, but they at any rate suggested to my mind the chirp of *Carpodacus mexicanus frontalis* (one of which birds was vocalizing in the same tree with the Brown Towhee), and in a less degree the throaty-musical chirp of *Iridoprocne bicolor*. The syllables were uttered from two to four times; on the average, three. They were low in pitch; and were sung softly, almost as if whispered. Still, they were audible at twenty feet, as my wife, who was with me, can testify. They were uttered about as fast as one can possibly say them as above spelled,—i. e., *treh-treh-treh*. The most significant thing about them was the fact that they contained the same essential phonetic elements that appeared in the added syllables of my previous two Brown Towhee songs, namely, a vowel sound lower in frequency (pitch) than the 't' in *tip*, and a musical r-sound. It is not at all impossible that the ear of the Brown Towhee would hear the *chreh*-sound of the House Wren, the *chrip*- (or *chrep*-) sound of the Linnet (see p. 193 of my article), and this *treh*-sound of origin unrecognized by me, as the same sound. The bird ear might respond negatively to the minor sound factors that cause these notes to sound different to the critical human ear. Certain it is that the three sounds are essentially identical in spite of the fact that I could tell them apart in the field and have indicated the slight differences that I heard by slight differences of spelling.

It strikes me as a rational assumption that, since I, a single observer, have on three separate occasions met with a Brown Towhee elaborating its song according to the same essentials of phonetics and form, none of the three songs heard could have been an individual freak. If this type of Brown Towhee song originated as a mutation, it obviously has passed safely beyond the individual stage and is being transmitted for probable survival as a specific character. It stands to reason that a good many Brown Towhees are now singing this new type of song. I hope that other observers will be on the alert for further examples, and I shall certainly be glad to hear from any who are able to substantiate my hypothesis.

In closing I wish to modify one statement that I made in my article. I said (p. 193) that I considered the regular song of the Brown Towhee stereotyped and subject to but little individual variation. Since writing that I have heard about half a dozen Brown Towhees sing songs that are mechanically unstable and irregular! It seems that among these birds there are more poor and inexperienced performers than I had assumed.—RICHARD M. HUNT, 735 Bryant Street, Palo Alto, California, May 12, 1923.

**The Present State of our Knowledge of the Gray Titmouse in California.**—Last fall, for the first time in my field experience, I met with the Gray Titmouse (*Baeolophus inornatus griseus*). Upon shooting specimens I was struck with the amount of difference shown between this race and the previously familiar Plain Titmouse. These personal circumstances have led me to look into the history of the Gray Titmouse in California and to try to formulate some conclusions as to its present status in this state, with results as follows.

The Gray Titmouse was first recorded from California on the basis of specimens and information obtained on the Death Valley expedition of 1891, in Inyo and Mono counties. In Dr. A. K. Fisher's "Report on the Ornithology" of that expedition (N. Amer. Fauna no. 7, 1893) the following statements (p. 139) are made in regard to this bird. "In the Panamint Mountains, California, it was seen in Johnson and Surprise cañons among the piñons and junipers in April, and Dr. Merriam found it common north of Telescope Peak, where a female, containing eggs nearly ready to be deposited, was killed, April 17-19. The writer saw a few at the same place June 22. Mr. Nelson noted it sparingly among the piñons on the Panamint, Grapevine, Inyo, and White mountains during the breeding season. Along the eastern slope of the Sierra Nevada a few were seen at the head of Owens River, and at Benton, in July."

Four examples were preserved, according to Dr. Fisher's report, all from the Panamint Mountains. Three of these are still extant, and have, through the kindness of the executive officers of the United States Bureau of Biological Survey, been sent on to me for examination. The data borne by them are as follows: Nos. 136603, ♂, 136600, ♀, Johnson Canyon, 6000 feet, Panamint Mountains, California, March 28, 1891, A. K. Fisher collector (orig. nos. 145 and 146, respectively); no. 136599, ♀, "Panamint Mountains," California, April 18, 1891, F. Stephens collector (orig. no. 47).

The next record is that by Frank Stephens (Condor, v. 1903, p. 105) of occurrence in the Providence Mountains, in eastern San Bernardino County. He simply says that he "saw two." Then Ned Hollister (Auk, xxv, 1908, p. 461) reports that he found the race "fairly common among the junipers on New York Mountain," in the same general range of mountains. "Specimen collected"; and this specimen is now before me, thanks to the authorities of the Biological Survey, and yields data as follows: no. 197059, ♂, New York Mountain, California, June 9, 1905; N. Hollister, collector (orig. no. 859).

The latest printed account of the Gray Titmouse in California is that by G. Willett (Condor, xxi, 1919, p. 206) who found it "rather common in juniper timber around Clear Lake [Modoc County]. By the middle of April [1918] was paired and apparently about to breed."

Now comes some hitherto unpublished information, from specimens and notebooks in the Museum of Vertebrate Zoology. No. 28738 is an adult ♀ taken at Benton, Mono County, September 6, 1917, by H. G. White (orig. no. 1442). This was the only individual seen in the vicinity. No. 40997 is a ♀ taken on the Scott ranch, ten miles southwest of Alturas, Modoc County, May 25, 1920. It was shot from a juniper, and one other titmouse was seen.

On September 27, 1922, Mrs. Grinnell and myself found a pair of Gray Titmouses in some juniper trees near Steele Meadow, Modoc County. They were located by hearing the 'chickadee' call-note, very throaty as compared in our memory with the corresponding call of the Plain Tit. One of the birds pounded so loudly on a branch as to be mistaken for a woodpecker until sighted. The two were taken and proved to be birds-of-the-year. They are now nos. 43375, ♂, and 43376, ♀, Mus. Vert. Zool. (orig. nos. 5554, 5555, J. and H. W. Grinnell).

With respect to relative numbers and continuity of distribution it is useful to call attention to some negative evidence. Three months of field work in the Modoc region in 1910 by W. P. Taylor and assistants did not disclose the presence of any *Baeolophus*. Several weeks of collecting by H. S. Swarth and assistants in Owens Valley and adjacent mountains in the spring and early summer of 1912 produced no titmouses. Several weeks of collecting in Inyo and Mono counties, including the White Mountains, in 1917, by A. C. Shelton, H. G. White, and myself, produced only the one Gray Titmouse noted above, captured by White at Benton. Many weeks of work in

the Death Valley country in 1917, by J. Dixon and me, and again in 1920 by me, failed to disclose to either of us the presence of even one titmouse, though we went over some of the identical ground where the Death Valley expedition had taken specimens some thirty years previously.

As far as I know at the moment of this writing, only the eight specimens of Gray Titmouse above enumerated, taken in California, are contained in any museum.

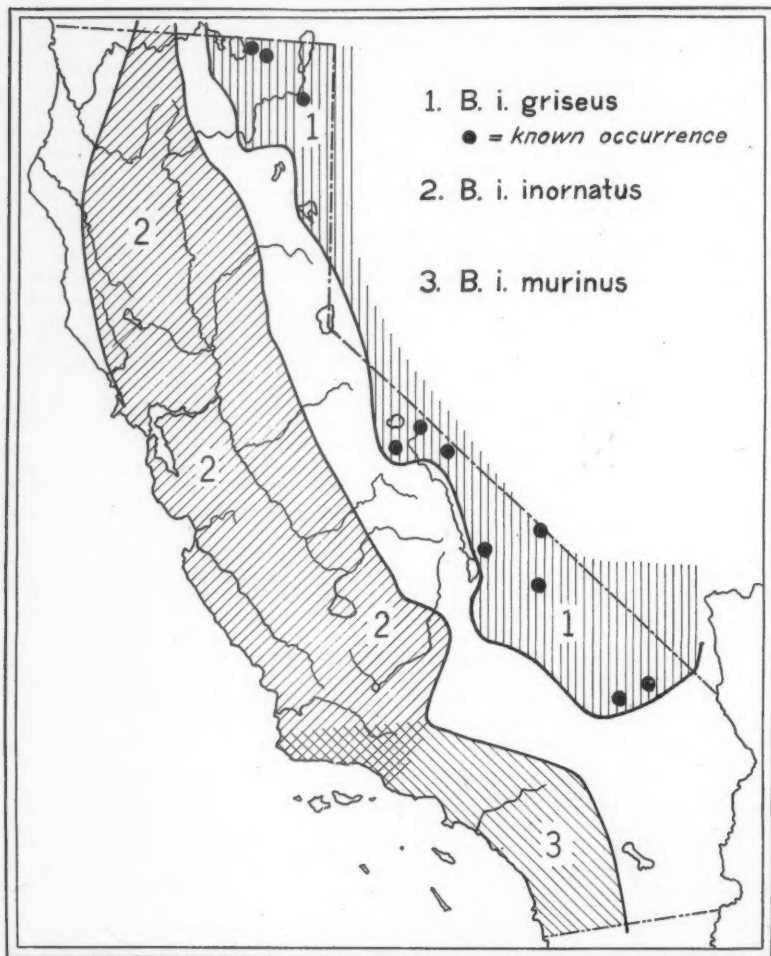


FIG. 45. MAP SHOWING RANGES OF TITMOUSES (*Baeolophus*) IN CALIFORNIA.

I have compared this small series with a very satisfactory series of sixteen examples in this Museum taken in northern Arizona, and find the two lots indistinguishable on any basis whatsoever.

With regard to distinctness, my study of the series of skins available at this writing (24 of *B. i. griseus*, 175 of *B. i. inornatus*, and 57 of *B. i. murinus*) leaves me with

the strong impression that the Gray Titmouse is set off much more sharply from the *inornatus-murinus* titmouses than has hitherto been supposed. In spite of statements and implications to the effect that intergradation between *inornatus* and *griseus* occurs in the region of the southern Sierra Nevada, I have failed to find even one fair intermediate. It is true that specimens of *inornatus* from the southern Sierras and the vicinity of Walker Pass, in Fresno, Tulare, and Kern counties, are decidedly paler in tone of color than typical *inornatus* from west-central California. But this paleness consists merely in lightening of the tone of brown dorsally and a whitening of the lower surface; it does not tend toward the leaden hue both above and below characteristic of *griseus*.

*Griseus* has other characters, too: relatively longer tail, longer wings, and larger bill, just as pointed out by Ridgway (Birds N. and Mid. Amer., III, 1904, p. 390). These increases in certain dimensions do not, however, accompany a general increase of body size; for ascertained weights (of 19 individuals of *griseus* and of 39 individuals of *inornatus*) show no difference of moment. After all, the leaden color, involving the whole bird including the surfaces of the wings and tail, is the impressive feature; and I will again state that I fail to find any specimen that I would call an intergrade between either *inornatus* or *murinus* and *griseus*.

Furthermore, as shown in the accompanying map (fig. 45), information so far available indicates a geographic hiatus between the range of *griseus* and the range of *inornatus*. I know the territory on the east flank of the Sierra Nevada north from Kern County to Mono County, and I think it very unlikely that there is any well-marked continuity of favorable conditions there, such as would have to be present to permit of free intergradation. It will be recalled that all of these races of *Baeolophus* are rather strictly confined to the Upper Sonoran life-zone. *Griseus* belongs to the piñon-juniper association; *inornatus* to the analogous digger-pine and oak association.

It may be remarked here that the differences characterizing *murinus* are slight and that they are inconstant; also that blending between *inornatus* and *murinus* is complete by way of both geographic and individual variation—which, again, is not the case between either of those forms and *griseus*. *Griseus* parallels *plumbeus* in the bush-tits. I am almost tempted to propose full specific status for the Gray Titmouse. But I do not know enough about the geographic behaviour of the titmouses in the Rocky Mountain region and in Lower California.

To summarize: The Gray Titmouse is a very distinct form, separated sharply from the Plain Titmouse geographically as well as on the basis of phylogenetic characters. No intergradation between these two titmouses is known to take place. The Gray Titmouse in California is a rare bird. It has been found to exist only in small numbers and at a few widely scattered points. The general territory in which it occurs lies east of the Sierran divide, in the arid Great Basin faunal division. The life-zone occupied is the Upper Sonoran, and the association the piñon-juniper.—J. GRINNELL, Museum of Vertebrate Zoology, University of California, Berkeley, March 20, 1923.

**Pine Siskins as 'Foliage-feeders'.—**On February 22, 1923, I noticed one of the oak trees (*Quercus agrifolia*) in Washington Park, Alameda, California, swarming with a continually moving flock of birds which, after approaching closer, I found to be Pine Siskins (*Spinus pinus pinus*). Judging that they were enjoying an afternoon meal I decided to watch them. It was not long before I noticed a green substance adhering to the sides of their bills, which they would occasionally wipe off on the branches. Catching some of this as it fell to the ground I discovered that it was green leaf material and concluded (prematurely) that the rascals were nipping the newly formed leaf buds. Further observation proved this to be erroneous, for the birds were procuring their food from the lower surfaces of the leaves. Examining the leaves I found a great many of them afflicted with the gall of a saw-fly (*Callirhytis bicornis*). The galls were attached to the midrib or a lateral vein on the lower surfaces of the leaves. They were composed of leaf material, light green in color (lighter than the leaf), from two to four millimeters long and shaped somewhat like a miniature saddle, being depressed in the middle and rising to an apex at both ends. Each contained a minute milky-white grub and many close views revealed the birds 'shelling' the galls and devouring the contents exactly as a domestic canary shells its seeds.

The flock contained about one hundred birds and as they moved from tree to tree I was struck by the resemblance to the movement of a flock of bush-tits. First one or two birds flew to a neighboring tree. In a few seconds they were followed by several more and so on until the entire flock had moved.

I am indebted to Professor E. O. Essig of the Department of Entomology, University of California, for the identification of the galls.—FRANK N. BASSETT, *Alameda, California, March 24, 1923.*

**The Horned Puffin on the Coast of Oregon.**—On March 7, 1916, while collecting birds on the Netarts Sandspit, Netarts Bay, Oregon, two of these puffins (*Fratercula corniculata*) were found washed up on the ocean beach. Both had been considerably mutilated by gulls and were partly decomposed. The head and neck of one specimen was preserved, however, and the identification has recently been verified by Dr. H. C. Oberholser, of the Bureau of Biological Survey.

Inasmuch as this species has never been recorded from the State of Oregon, I am hereby offering the record for what it is worth.—STANLEY G. JEWETT, *Portland, Oregon, March 27, 1923.*

**The Mexican Cliff Swallow in Cochise County, Arizona.**—In August, 1915, I was located at Fort Huachuca, Cochise County, Arizona, and was much interested to find a somewhat numerous colony of Cliff Swallows nesting in scattered locations all over the fort. I shot several of the birds and found that they were the Mexican subspecies (*Petrochelidon lunifrons melanogastra*). Eight pairs were first observed with nests under the eaves of the railroad station and of the section foreman's house. This was on August 1. Five of the nests contained young and three were in process of construction. Judging from the remains of other nests and the looks of the buildings, several broods of young had already left their nests and were on the wing. A few days later the nests on the station were destroyed by painters.

On August 3, a set of five fresh eggs was collected from a nest under the roof of the open coal storage shed. This shed was in the fort proper and was over a mile from the railroad station. Two other nests were under this shed and held incomplete sets. Unfortunately, they were knocked down by troopers before the sets were completed. Several single nests were noticed under the eaves of the officers' quarters. Some new quarters were being built and were nearly completed, but the windows had not been put in place. On August 8 I found four nests in one room of the second story. One held a set of four eggs in which incubation had begun. One was occupied by a brood of half-grown young. The third held an incomplete set and the fourth was not yet finished. On the 10th, in a second-story room of another unfinished building, I collected a set of four eggs in which the incubation was varying, one egg being infertile. Another nest in this room was still unfinished, and another contained young.

I estimated the total number of the colony at twenty-five pairs. Many of their nests were destroyed by the workmen and others as I have already mentioned, but the end of the season saw a very sizable flock gathered for migration. This flock moved down to Huachuca Siding in September and joined forces with a large flock of Barn Swallows (*Hirundo erythrogastra*) which had been nesting there during the summer. This siding is about eight miles from the fort and several hundred feet lower in altitude. The combined flock of several hundred birds stayed there for some time, and I did not learn just when it left.

With the exception of the pairs nesting in the new quarters, all the nests were attached to well painted woodwork. In the quarters, they were attached to the plastered walls close up against the ceilings. They were the usual gourd-shaped nests of mud pellets, with a few bits of grass for lining and a very few feathers. In the dry atmosphere of the mountains, the pellets of mud dried very quickly and it was surprising to see how fast a pair of birds could build up the walls of their abode. Both birds took part in the building. On arriving at the nest with a pellet of wet mud, the bird would press it into its appointed place and hold it there for several seconds until it was 'set.' I never saw a pellet thus held in place drop off when the bird loosened its hold.



In 1919, I was at the fort in June and saw but four or five pairs of the Cliff Swallows, none of them apparently nesting. I was not there later, so do not know whether the colony had shrunk to this number or whether others came later.

In April, 1922, our party was visiting Fort Huachuca and observed several pairs of the Mexican Cliff Swallows building nests under the eaves of the barracks. There were none at the station or at the section foreman's house where I had previously found them. I believe that a dozen pairs would be a liberal estimate for this scattered colony, now.

In May, Mr. A. C. Bent and I were collecting along the San Pedro River in the vicinity of Fairbanks and discovered a small colony of Mexican Cliff Swallows at the home ranch of the Boquillas Cattle Co., about twenty miles from Fort Huachuca. The cliff swallows were in partnership with some barn swallows in the occupancy of a large two-storied barn. The barn swallows were downstairs, their nests being placed on the joist braces, over the carriage-way. On this date, May 17, most of the nests contained incomplete sets. The cliff swallows were upstairs in the empty haymow. None of their nests was yet more than an outline of mud on the rafters in the peak. On June 9, in company with Mr. Ed. C. Jacot, I again visited the colony and found that it consisted of eight pairs. The birds looked out at us from each of the six completed nests. Two nests were placed at the peak of the roof by each of three adjacent pairs of rafters. Two incomplete nests were farther down the line. Four of the nests held complete sets, two of four and two of five eggs. Incubation was barely noticeable.

The average measurements, in inches, of twelve eggs is  $.78 \times .56$ . The largest is  $.84 \times .56$ , the smallest  $.75 \times .55$ . One set of four deserves special mention because of the uniform size of the eggs, which measure  $.75 \times .56$ ,  $.76 \times .57$ ,  $.76 \times .56$ ,  $.76 \times .57$ , respectively.

I was told of a colony nesting on a railroad bridge near Patagonia, a station on the Southern Pacific branch line from Benson to Nogales and near the latter place, but was unable to verify the report. Apparently this species is becoming more widely distributed in that section, and possibly increasing.—F. C. WILLARD, *Farmingdale, Long Island, New York, April 18, 1923.*

**Recurrence of White-throated Sparrow in Orange County.**—In *The Condor*, vol. 23, p. 138, I recorded occurrence here of a White-throated Sparrow (*Zonotrichia albicollis*) from March 19 to April 10, 1921. This year, on January 15, a single bird of this species was seen in the same brush pile in company with Intermediate Sparrows, and was seen almost daily until March 31, when it disappeared, although a very few of the Intermediate Sparrows remain at the present time.—JOHN MCB, ROBERTSON, *Buena Park, Orange County, California, April 23, 1923.*

**An Albino Nuttall Woodpecker.**—Early last March a most unusual white woodpecker was found in Griffith Park, Los Angeles, by Mrs. W. H. Martz and Mrs. I. J. Mitchell, of this city. During the following two weeks the place was visited almost daily by enthusiasts, and in every case the bird was found in the same general locality. Finally, after due ceremony, it was collected by the writer, on March 17.

In hand, the bird, a male *Dryobates nuttalli* showed a remarkable case of albinism. The black was entirely suppressed except for an almost imperceptible barring of the upper tail coverts, and for the eyes which were normal. The red of hind crown and nape, however, seemed actually intensified and extended slightly higher on the crown than in the normal bird.

Since none of the numerous observers saw the bird in company with another of its species, though the mating season had begun, and dissection showed the genitals much enlarged, the suggestion is made that this individual, on account of its abnormal dress, was ostracized by its fellows.—L. E. WYMAN, *Los Angeles Museum, Los Angeles, California, May 3, 1923.*

**Four New Bird Records for Oregon.**—Among a few birds recently sent to the Biological Survey and identified by Dr. H. C. Oberholser, I find four forms which seem to be new for Oregon.

*Dryobates pubescens turati*. Willow Woodpecker. A male woodpecker collected

at Medford on March 2, 1919, proves to be this form. Many California forms enter Oregon in the Rogue River valley, and it is no surprise to find this subspecies there.

*Melospiza melodia kenaiensis*. Kenai Song Sparrow. A dark colored song sparrow noticed feeding on the rocks at Cannon Beach on February 8, 1922, appeared so different from the usual birds that it was collected.

*Melospiza melodia inexpectata*. Yellowhead-Pass Song Sparrow. While visiting a neighbor in Portland on January 8, 1922, a peculiar looking song sparrow was noticed in the yard. After watching it for some time I returned home to secure a gun and collected it.

*Passerella iliaca mariposae*. Yosemite Fox Sparrow. On June 13, 1921, a small colony of Fox Sparrows was found on a brush covered hillside at about 4,000 feet altitude in Jackson County. This colony was located on the north slope of a small butte on Little Butte Creek, about twelve miles from the summit of the Cascades, which, at this point, is about 5,000 feet in altitude. Only one single male was collected.—IRA N. GABRIELSON, Portland, Oregon, May 14, 1923.

**The White-tailed Kite on the Mohave Desert.**—On September 17, 1922, I saw an adult White-tailed Kite (*Elanus leucurus*) flying up and down the Mohave River, just below the town of Victorville, San Bernardino County. This locality is considerably outside the established California range for the species, and is in a different faunal area. The river at this point would seem to offer every inducement to kites. There are extensive willow and cottonwood groves along the banks and in the adjacent bottomland, as well as numerous small marshes where food should be found in abundance. Under these circumstances it would not be surprising if further observation showed the species to be not so casual here as the single record at present would indicate.—A. J. VAN ROSSEM, Pasadena, California, March 26, 1923.

## WITH THE BIRD BANDERS

Under the Direction of J. Eugene Law, Altadena, California

**Foreword.**—When Baldwin's epochal paper "Bird-Banding by means of Systematic Trapping" came west, the manager of this department determined to lose no time in adopting this method of bird study. For two years now, solitary trapping has been yielding surprise after surprise. But where his birds go and where they come from remains a mystery. Only through the cooperation of a corps of earnest workers in well distributed localities can such problems be solved. Obviously, the accumulation of this data will be in direct proportion to the number of operators engaged in such activities.

In the east, the bird banding movement is rapidly gathering momentum under the stimulation of the New England Bird Banding Association and the Inland Bird Banding Association. The Linnaean Society of New York and the Delaware Valley Ornithological Club have both announced their intention of actively promoting it. In the west, the Cooper Ornithological Club has already made provision for the organization of local chapters of bird banders.

It will be the purpose of this department to stimulate interest in bird banding and in the organization of such chapters, and as well to assemble and present in necessarily condensed form any items of interest to bird banders and about banded birds. From time to time lists of birds banded will be added as heretofore, so that one taking a western bird which bears a band can at once, by consulting Condor files, determine the station from which the bird has come. A complete list of bands appears on the back cover.

**Merits and Demerits.**—Nothing in ornithological history has promised so much as does bird banding for the advancement of accurate knowledge of the travels of birds. We have studied groups; now we can study the individual. Intimate facts about its daily life, heretofore only guessed at, can now be accurately recorded. The daily radius of its activities, its mating proclivities, its winter and summer home, its route of migra-



tion and the time consumed, a dozen lines of study are within the grasp of the sincere student.

But trapping a bird is a serious matter. An injury to the bird handicaps it in its effort to perpetuate itself. A bird must find food, a lot of food, every day of its life. Lessened activity means lessened vitality, and that means lessened alertness to escape its enemies, which are legion. Such a bird is an abnormality no longer acceptable in studies of the normal habits and activities of birds.

There is nothing about the trapping or banding of a bird that a person with fairly deft fingers cannot accomplish and accomplish well. A little practice makes it routine. We believe that students of birds, those persons who have been drawn to this study by an innate or by a developed desire to know the birds better, will play fair with the birds and will avoid neglect and injury to them. We believe that such students will realize the necessity of an accurate and painstaking record of their activities. And to such, there should be no question about the granting of permits.

But frankly, we do decry a tendency already apparent to make bird banding a popular fad, a game for the dilettante, for we believe that more harm than good will come to ornithology from the extension of this movement outside of the circle of those who have taken an active interest in the birds.

No small number of our best banders will come from the ranks of those whose tenderness for the birds abhors any cruelties to them. Wholesale operations by the individual or by the public are bound to inflict unnecessary distress on the birds, and as surely will breed opposition from those whose active cooperation we need.

We do not believe that western birds are temperamentally different from those of other localities. Western birds cannot be trapped in quantity without injury to them. They can be trapped under constant supervision without apparent distress whatever. I have had a linnet sing its entire song between my hand and its first perch after being banded. Wren-tits frequently begin singing the instant they reach their first perch, and continue until lost to sight. Thrashers often utter snatches of song while in hand.

**Band All Nestlings.**—Nestlings offer a particularly attractive field for banding activities. You start at the beginning of the life cycle. Whether the young in your yard nest there the next year, or a block or a mile away, is one of the problems that your banding efforts may solve for you. Do the young acquire adult plumage in one, two, or three years? Your traps can tell you.

**Banded Birds Killed.**—What to do with the band when a banded bird is killed, has been asked. Since the band carries definite information with regard to that bird's life-history, it is important that the band be left intact on the bird's leg, and that the bird be preserved as a study specimen. If the captor is unable to prepare the skin, he should deliver the bird at once (dead birds spoil quickly) to some person who will. All data with regard to the banding and to other subsequent captures should be assembled and recorded on a tag attached to the specimen. Do not fail to forward to the Biological Survey at Washington the details of capture: date, locality, sex, etc.

**A Banded White-throated Sparrow Returns to a California Station.**—Perhaps the most remarkable record yet obtained by banding birds is that of a White-throated Sparrow (*Zonotrichia albicollis*) banded by Mrs. Amelia S. Allen at Berkeley, California, on January 25, 1922. The normal range of this species both winter and summer is entirely east of the Rocky Mountain divide. A few winter 'stragglers' have been recorded from the Pacific slope. This banded straggler returned November 29, 1922, to the food table where it had been banded and reappeared frequently throughout the winter and until April 4, 1923. Mrs. Allen re-captured it on April 1, 1923, to make certain its identity.

This brings up a momentous question: Do stragglers straggle? If this bird, as we have assumed for stragglers, was thrown out of its normal migration route by some unnatural cause in the autumn of 1921, it would be most extraordinary that a like unnatural event should have again diverted it in the autumn of 1922. In other words, we

are led to assume that the migration route over which it traveled in the autumn of 1921 was or became a 'fixed character,' since this bird came back, without others of its kin, in the autumn of 1922.

*Altadena, California, May 16, 1923.*

# RECORD OF BIRDS BANDED

Bands:	9723	12396	15256-15258	42896-42900	49008-49009	52014
	10306	12701-12725	16312-16317	43606-43610	49380	52016-52018
	11521-11527	14422-14425	16322-16323	43937-43940	51976-51978	52211
	12376	14429-14436	21551-21555	45012	51980-51981	55032-55039
	12383-12389	14438-14442	24849	47656	52001-52002	56176-56200
	12391	14470	24866-24872	47658-47660	52007-52012	56439
	12393-12394		24874-24875	48171		56442-56444

Mrs. Amelia S. Allen, at Berkeley, California, January 23, 1922 to April 1, 1923.

<i>Junco oreganus</i> (subsp.), (1) 51981.	<i>Pipilo c. crissalis</i> , (2) 51980, 55038.
<i>Melospiza melodia</i> (subsp.), (4) 45012,	<i>Pipilo maculatus</i> (subsp.), (3) 49008,
48171, 51977, 55036.	55035, -39.
<i>Passerella iliaca</i> (subsp.), (5) 51976,	<i>Zonotrichia albicollis</i> , (1) 51978.
55032, -33, -34, -37.	<i>Zonotrichia coronata</i> , (1) 49009.

H. C. Bryant, at Berkeley, California, May 11, 1922 to April 6, 1923.

<i>Junco oreganus</i> (subsp.), (6) 11523,	<i>Pipilo c. crissalis</i> , (3) 15256-15258.
21551-21555.	<i>Zonotrichia albicollis</i> , (1) 11526.
<i>Lophortyx c. californica</i> , (9) 42896-42900,	<i>Zonotrichia coronata</i> , (4) 11525, -27,
43937-43940.	49380, 52211.
<i>Melospiza m. rufina</i> , (1) 11522.	
<i>Passerella iliaca</i> (subsp.), (2) 11521,	
-24.	

J. Eugene Law, at Altadena, California, October 31, 1922 to May 6, 1923.

<i>Carpodacus m. frontalis</i> , (8) 12715, -16,	<i>Pipilo c. senicula</i> , (9) 12725, 16312-16316,
-18, -19, -24, 52001, -12, 56439.	-23, 56442, -43.
<i>Chamaea f. henshawi</i> , (7) 24874, 52008-	<i>Toxostoma r. redivivum</i> , (1) 10306.
52011, -14, -16.	<i>Zonotrichia coronata</i> , (29) 12383-12389,
<i>Lophortyx c. vallicola</i> , (1) 9733.	-91, -94, -96, 14422-14425, 14429-14436,
<i>Melospiza m. cooperi</i> , (2) 12703, -17.	14438-14442, -70.
<i>Mimus p. leucopterus</i> , (1) 56444.	<i>Zonotrichia leucophrys</i> (subsp.), (25)
<i>Oporornis tolmiei</i> , (1) 52002.	12701, -02, 12704-12714, 12720-12723,
<i>Pipilo m. megalonyx</i> , (2) 16317, -22.	12393, 24849, -66, -72, -75, 52007, -17,
	-18.

At Los Angeles, California, December 21, 1922 to December 29, 1922.

<i>Carpodacus m. frontalis</i> , (1) 24869.	<i>Zonotrichia leucophrys</i> (subsp.), (4)
<i>Melospiza m. cooperi</i> , (1) 24867.	12376, 24868, -70, -71.

Helen S. Pratt, at Eagle Rock, California, April 8, 1923 to April 30, 1923.

<i>Carpodacus m. frontalis</i> , (1) 54836.	<i>Zonotrichia coronata</i> , (2) 42821, -22.
<i>Melospiza m. cooperi</i> , (4) 54840-54843.	<i>Zonotrichia leucophrys</i> (subsp.), (8)
<i>Pipilo c. senicula</i> , (3) 47166, -67, 42823.	54831-54835, 54837-54839.

Roland Case Ross, at Pasadena, California, March 28, 1923 to May 11, 1923.

<i>Carpodacus m. frontalis</i> , (25) 56176-56200.	<i>Pipilo c. senicula</i> , (1) 43610.
<i>Mimus p. leucopterus</i> , (4) 47656, -58, -59,	<i>Zonotrichia leucophrys</i> (subsp.), (4)
-60.	43606-43609.

## EDITORIAL NOTES AND NEWS

The annual roster appearing in this issue shows an active membership in the Cooper Ornithological Club of 816, with honorary 7, making a total of 823 members. This is a three percent increase over last year, and is by that much the largest in the history of the Club.

With this issue of *THE CONDOR* a new department is started, "With the Bird Banders". This department will be conducted under the management of Mr. J. Eugene Law, who is himself vigorously pursuing the fascinating and promising line of inquiry already initiated under the auspices of the United States Biological Survey in many parts of America. We recommend that our readers take particular note of the text on pages 119-120, 140-142, and on outside back cover of this issue.

An appalling condition exists among the water birds at Buena Vista Lake, California, according to word received April 26 from Allan Brooks. Disease, apparently the same that in other years has been more or less destructive to ducks, is now killing waders as well, in countless numbers. Brooks says: "Shore birds are here in swarms, and the sick birds are dying by thousands. Western Sandpipers are here in greatest numbers. With them are many Least and a few Solitary and Spotted sandpipers; also Black-bellied, Semipalmated and Snowy plovers, Dowitchers, Hudsonian Curlew and Marbled Godwit. No dead Curlew or Godwits yet, though they are getting sick. The others are all sick and dying. Sandpipers are the worst sufferers; one dead Western Sandpiper alone per yard of shore is a very moderate estimate. Stilts are nearly wiped out; Avocets almost as bad. The Sacramento-San Joaquin Valley should be called 'Death Valley', as far as birds are concerned. Is there not something that can be done to mitigate this evil, which grows worse each year?" Of course, the cause is correlated with the reclamation of the watered territories, whereby there are left only a few polluted remnants of the former wide areas adapted to certain bird species. These birds, at critical times of the year, are compelled to crowd into such now unfit places, with resulting enormous casualty. No amount of "protection" will do any good, save as involving the institution or preservation of healthful and appropriate territory for these birds. If that is impractical, as some of the opponents of the recently defeated Federal "game refuge bill" averred, then we have got to simply sit by and watch the continued disappearance of certain types in our avifauna.

A rather interesting and suggestive precedent has been set by the Natural History Museum of San Diego, in placing certain of its most valuable specimens in the fire-proof vault of a bank in that city. The specimens in question are of extinct species of birds (Eskimo Curlew and Guadalupe Caracara), therefore irreplaceable. This arrangement was made possible through the enterprise of Mr. J. W. Sefton, Jr., president of the San Diego Society of Natural History.

Our fellow member, Mr. Frank N. Bassett, has started a summer resort at Jonesville, near Butte Meadows, California, with particular attention to providing comfortable headquarters for nature students. This is at an elevation of 5000 feet, on the west slope of the Mount Lassen section of the northern Sierra Nevada. This region has attractions peculiarly its own, to the botanist, to the geologist, and to the ornithologist.

### PUBLICATIONS REVIEWED

ELIOT'S BIRDS OF THE PACIFIC COAST.\*—The author, Mr. Willard Ayres Eliot, Vice-President of the Oregon Audubon Society, Portland, states in the preface that this little book is "dedicated to the amateur bird students of the West, especially to the teachers and students in our public schools." With this type of audience as the objective clearly understood, many good things can be said of the book, with all sincerity. The volume is so small and light that it goes comfortably in one's coat-pocket. The illustrations are abundant and they are colored; pictures of no less than 118 species are shown, and while of necessity cheaply reproduced, are good enough to help immeasurably in making first acquaintance with the birds in life. The type of the text is clear, on unglazed paper; and typographical errors are gratifyingly few. What is refreshing after certain recent experiences of ours with "popular" books, the English is good. The ornithology is fair,—but here the reviewer, to be consistently honest, must make some comments of an unfavorable kind.

We do not have to read far, skipping here and there, to find slips, inaccuracies, and general statements not justified by detailed facts. Here are some examples: On

\*BIRDS OF THE PACIFIC COAST | Including a brief account [etc., 7 lines] | By Willard Ayres Eliot | With fifty-six color plates by | R. Bruce Horsfall | G. P. Putnam's Sons | The Knickerbocker Press | New York and London | 1923; 16mo, pp. xviii + 211, illus. as above stated. Copy rst seen by the reviewer May 18, 1923.

page 3, second paragraph of the first account in the book, we are told that "the western bluebird is a dark purplish blue instead of the bright blue of the eastern variety." There is much variation in tone of blue in each species; a good deal of this variation is concomitant with the processes of wear and fading. Examination of series of specimens of the two species will show individuals identical in tone of the blue; and the averages, *taking season and climate strictly into account*, are but very slightly different—certainly affording no field character serviceable to the amateur.

The song of the varied thrush (p. 9) is stated to be "clear" and to be given in a "descending scale"—not at all according to the somewhat extended experience of the reviewer. The wren-tit (p. 40) is said to sing down the scale, this in spite of the recent full setting forth of the facts by Loye Miller (Condor, xxiii, 1921, p. 97).

The California jay belongs to a genus all members of which (p. 113) "are found mostly in mountainous country or in the high plateaus, being frequenters of pine and fir and the oak timber of the southwest"—not at all a proper statement.

The sharp-shinned hawk is declared (p. 152) to be "not common along the Pacific Coast"; and (p. 155) the "Cooper hawk is never a common bird in the West"—of course, altogether misstatements as far as California is concerned (though mayhap applying to the vicinity of Portland, Oregon). And this leads us to wonder if the geographically very limited experience of the author may not in some instances have been expanded to cover the "Pacific Coast"—surely a very unsafe thing to do. Possibly such statements as these last, together with the unjustifiably extensive title of the book, "Birds of the Pacific Coast," were matters of expediency urged upon the author by his publishers in the interests of a widened market. We have heard of such doings before. The whole book breathes of Oregon, but Oregon is only one of a series of "Pacific Coast" states (in the broad sense evidently intended), of vastly diversified avifauna.

There is just one more point to select for mention; and this did get some ways under the reviewer's skin! On page 124, the pileated woodpecker is stated to have "become one of the rarer species, for its large size and handsome appearance have been its undoing, the so-called scientist, the collector and the idle gunner having shot it

out. . . ." Why *will* Audubon people persist in taking flings at collectors! Why should the Audubon exponent be so prone to turn and bite the hand that feeds it! There is little doubt that "so-called scientists" and "collectors" have put on record at least 90 percent of the reliable ornithological knowledge extant today. We observe that the present book is chiefly a compilation from a selection of authorities (named in the preface)—who would not have been authorities without the basic process of collecting having been long and arduously carried on. The reviewer is himself a "so-called scientist" and a "collector", both; he is thankful for his past experience as a collector; but he does not relish being classed with the "idle gunner", and especially being called to account as a co-factor in the extermination of any species of bird. (See Science, n. s., lvi, Dec. 15, 1922, pp. 671-676.) Once more, upon what ethical basis are Audubon folks justified in going out of their way to stigmatize us "so-called scientists" and "collectors" before the rising generation, as if we were moral outcasts, only to be condemned and shunned?

Well, well; we hadn't intended going quite so far! Please, reader, go back and scan the first paragraph of this review, and leave these columns with the more favorable impression which Eliot's "Birds of the Pacific Coast" really deserves.—J. GRINNELL, *Museum of Vertebrate Zoology, Berkeley, May 27, 1923.*

#### MINUTES OF COOPER CLUB MEETINGS

MARCH.—The regular meeting of the Cooper Ornithological Club, Northern Division, was held at the Museum of Vertebrate Zoology on March 22, 1923, at 8 P. M. President Cooper was in the chair and the following members were present: Misses Beaman, Burk, Clough, Flinn, Pringle, and Thomson; Mesdames Allen, Bogle, Cantelow, Frederick, Grinnell, Reygadas, and Thomas; Major Brooks, Messrs. Cantelow, Dixon, Evermann, Gignoux, Grinnell, Malliard, Strong, Swarth, Thomas; visitors were Mrs. Evermann, Mrs. Thomson, and Mr. Taylor.

The minutes of the February meeting were read and approved and the following names were presented: Mr. Ralph Ellis and Mr. Ralph Ellis, Jr., 2421 Ridge Road, Berkeley, California, by Mr. H. S. Swarth, and Mr. Ralph W. Chaney, 1232 Carlotta St., Berkeley, by Mr. Joseph Grinnell.

Mr. Joseph Mailliard reported for the Affiliations Committee the result of the recent meeting, recommending that the Southern Division be authorized to proceed with arrangements for the Los Angeles meeting to be held September 17-20. The report was accepted. A communication from the Secretary regarding the plans for this meeting was read.

Business completed, the club was entertained by an account of a field trip in the rice country, taken by Major Brooks and Dr. Grinnell and reported upon by the latter. Adjourned.—AMELIA S. ALLEN, *Secretary*.

#### DIRECTORY OF MEMBERS OF THE COOPER ORNITHOLOGICAL CLUB

Revised to June 15, 1923

##### OFFICERS

###### NORTHERN DIVISION

J. S. Cooper, President  
Joseph Dixon, Vice-President  
Mrs. Amelia S. Allen, Secretary

###### SOUTHERN DIVISION

Wright M. Pierce, President  
L. E. Wyman, Vice-President  
Luther Little, Secretary

##### EDITORS

Joseph Grinnell  
Harry S. Swarth

##### BUSINESS MANAGERS

J. Eugene Law  
W. Lee Chambers

##### ENDOWMENT SECRETARY

Donald R. Dickey

The above officers, together with the following ex-presidents (not included above, all those whose membership has been continuous since incumbency), constitute the Board of Governors of the Club.

Ralph Arnold, Harold C. Bryant, Henry W. Carriger, Herbert L. Coggins, Barton Warren Evermann, Walter K. Fisher, Ozra W. Howard, W. B. Judson, Joseph Mailliard, Loye H. Miller, G. Frean Morcom, Wilfred H. Osgood, Guy C. Rich, Howard Robertson, Tracy I. Storer, Curtis Wright.

##### MEMBERS

In the following roster, residence is understood to be in California unless otherwise indicated. Year following address indicates date that member joined the Club; year in parenthesis indicates date member became honorary or life member. Star (\*) preceding indicates life member; "\$" indicates contributor to Endowment Fund.

##### HONORARY MEMBERS

- \*\$Bailey, Florence M. (Mrs. Vernon), 1834 Kalorama Road, Washington, D. C. 1910 (1920) (1920).
- Henshaw, Henry W., Biol. Survey, Washington, D. C. 1909.
- Merriam, Dr. C. Hart, 1919 16th St., Washington, D. C. 1909.
- \*\$Morcom, G. Frean, 243 N. Coronado St., Los Angeles. 1904 (1915) (1922).
- Nelson, Dr. E. W., Biol. Survey, Washington, D. C. 1904 (1917).
- Ridgway, Robert, Route 7, Olney, Ill. 1905.
- \$Stephens, Frank, Natural History Museum, Balboa Park, San Diego. 1894 (1912).

##### ACTIVE MEMBERS

- Abbott, Clinton G., Nat. Hist. Museum, Balboa Park, San Diego. 1921.
- Abernathy, Frieda (Mrs. St. E.), 2300 Durant Ave., Berkeley. 1914.
- Adams, Benjamin, Wethersfield, Conn. 1920.
- Adams, Frank O., Canfield, West Vancouver, B. C. 1922.
- Adams, Miss Romola M., 912 Linden Ave., Long Beach. 1921.
- \*Alexander, Miss Annie M., Suisun. 1908 (1923).
- Alexander, E. Gordon, 1603 South St., Lexington, Mo. 1918.
- Allen, Dr. Arthur A., McGraw Hall, Ithaca, N. Y. 1911.
- Allen, Mrs. Amelia S., 37 Mosswood Road, Berkeley. 1913.
- Allen, Walter I., Lamanda Park. 1922.
- Anderson, Mrs. Malcolm P., 2809 Buena Vista Way, Berkeley. 1920.
- Anderson, Dr. Rudolph M., Biol. Div., Victoria Memorial Museum, Ottawa, Ont., Canada. 1916.
- Anthony, A. W., Nat. Hist. Museum, Balboa Park, San Diego. 1921.
- Anthony, Mrs. Joseph, 629 N. Belmont St., Los Angeles. 1922.
- Applegate, Elmer I., Klamath Falls, Ore. 1921.
- \*Appleton, J. S., 1332 Citrus Ave., Hollywood. 1901 (1919).
- Archer, Ethel M., Garden Grove. 1923.
- Armstrong, Edward E., 2249 Calumet Ave., Chicago, Ill. 1914.
- Arnold, E., Grand Trunk Ry., Montreal, Que., Canada. 1909.
- Arnold, Mrs. Lewis, 2732 Benvenue Ave., Berkeley. 1921.
- Arnold, Dr. Ralph, 639 S. Spring St., Los Angeles. 1893.
- Atkinson, W. L., 35 Hawthorne Way, San Jose. 1901.
- Atsatt, Miss Sarah R., 345 S. Serrano Ave., Los Angeles. 1911.
- Austin, Miss Dorothy K., 85 S. Madison Ave., Pasadena. 1921.
- Averill, Charles Ketchum, 159 Hazelwood Ave., Bridgeport, Conn. 1922.



- Bacon, Frank, 2231 Piedmont Ave., Berkeley. 1922.
- Bade, Dr. Wm. F., 2616 College Ave., Berkeley. 1903.
- Badger, M. C., Santa Paula. 1915.
- Bailey, Alfred M., Colo. Museum Nat. Hist., Denver, Colo. 1917.
- Bailey, Bernard, R.D. 1, Elk River, Minn. 1911.
- Bailey, H. H., Box 5, Miami Beach, Miami, Fla. 1903.
- Bailey, Vernon, 1834 Kalorama Road, Washington, D. C. 1904.
- Baker, Chas. H., 594 13th St., Oakland. 1921.
- \*Baldwin, S. P., 11025 East Boulevard, Cleveland, Ohio. 1920 (1920).
- §Bales, Dr. B. R., 149 W. Main St., Circleville, Ohio. 1906.
- Ball, Wm. H., Eureka. 1922.
- Ballard, Mrs. Maria V., 295 12th St., Portland, Ore. 1919.
- Bamford, Mrs. G. L., 1428 Castro St., Oakland. 1918.
- Bancroft, Griffing, 2525 First St., San Diego. 1920.
- §Bangs, Outram, Museum Comp. Zool., Cambridge, Mass. 1906.
- Barker, Fred, Parkers Prairie, Minn. 1914.
- Barnes, C. A., 1815 S. Western Ave., Los Angeles. 1921.
- Barnes, Claude T., 359 10th Ave., Salt Lake City, Utah. 1915.
- Barnes, Frances V., 1815 S. Western Ave., Los Angeles. 1921.
- \*§Barnes, R. Magoon, Lacon, Ill. 1908 (1921).
- Bartlett, Mrs. Adelaide R., Assessors Office, City Hall, San Francisco. 1922.
- Bassett, F. N., 1338 8th St., Alameda. 1919.
- Batchelder, Chas. F., 7 Kirkland St., Cambridge, Mass. 1910.
- Bates, Josephine J., 1267 Sunset Ave., Pasadena. 1921.
- Beaman, Miss Susan, Cora L. Williams Institute, Berkeley. 1923.
- \*§Beck, Rollo H., R.D. 21, San Jose. 1894 (1919).
- Beers, Miss Catherine V., Univ. Southern Calif., Los Angeles. 1921.
- Bell, Archibald W., 2536 Fulton St., Berkeley. 1922.
- Bell, B. C., 235 8th St., San Francisco. 1919.
- Benjamin, Elbert, 109 Coral St., Los Angeles. 1920.
- Bennet, Eleanor V. V., 2904 Piedmont Ave., Berkeley. 1920.
- Bennett, R. H., 216 Market St., San Francisco. 1909.
- \*Bent, A. C., 140 High St., Taunton, Mass. 1909 (1922).
- Benton, Floyd Charles, 454 Walcott St., Auburndale, Mass. 1922.
- Benton, Thos. H., Jr., 3200 Liberty Ave., Alameda. 1916.
- Bergtold, Dr. W. H., 1159 Race St., Denver, Colo. 1917.
- Betterley, Bertram O., 2005 2nd St., Eureka. 1922.
- Bicknell, Mrs. F. T., 319 S. Normandie Ave., Los Angeles. 1913.
- Bigelow, Homer L., 37 Old Orchard Road, Chestnut Hill, Mass. 1910.
- \*Bishop, Dr. Louis B., 356 Orange St., New Haven, Conn. 1904 (1920).
- Blake, Mrs. Edwin T., R.F.D. 1, Box 34, Berkeley. 1917.
- Blayney, Nita A., 920 O St., Fresno. 1911.
- Blickensderfer, Clark, 850 Grant St., Denver, Colo. 1922.
- Bliss, John D., Pozo, San Luis Obispo Co. 1916.
- Boardman, Margaret W., 1239 W. 11th St., Los Angeles. 1922.
- Boeing, W. E., The Highlands, R.D. 2, Seattle, Wash. 1914.
- Bogle, Mrs. Sara S., 2520 Hillegass Ave., Berkeley. 1921.
- Bolander, L. Ph., Jr., 1947 E. 28th St., Oakland. 1907.
- Bolt, B. F., 1421 Prospect Ave., Kansas City, Mo. 1916.
- Borell, Adrey E., 227 Calaveras Ave., Fresno. 1918.
- Borton, E. C., 1007 Morton St., Alameda. 1923.
- Bourne, W. A., Box 27, Yosemite. 1923.
- Bowdish, B. S., Demarest, N. J. 1910.
- Bowles, J. H., The Woodstock, Tacoma, Wash. 1903.
- Boyle, Ashby D., 380 E St., Salt Lake City, Utah. 1915.
- Boyle, Miss Una, Calpella. 1921.
- Boynton, Charles T., 1005 S. Sheridan Road, Highland Park, Ill. 1919.
- \*§Bradbury, W. C., 1440 Race St., Denver, Colo. 1913 (1914).
- Braislin, Dr. William C., 425 Clinton Ave., Brooklyn, N. Y. 1910.
- Bramkamp, Richard, Banning. 1921.
- Brandt, H. W., 2025 E. 88th St., Cleveland, Ohio. 1914.
- Bridges, Mrs. Harriett W., 8 Plympton St., Cambridge, Mass. 1918.
- \*Brooks, Allan, Okanagan Landing, B. C., Canada. 1906 (1920).
- Brooks, L., Box 539, New Bedford, Mass. 1913.
- Brooks, Winthrop Sprague, Boston Soc. Nat. Hist., 234 Berkeley St., Boston, Mass. 1923.
- Brouse, W. A., 3623 5th Ave., Los Angeles. 1916.
- Brown, D. E., 87 Lenora St., Seattle, Wash. 1909.
- \*Brown, Edward J., 222 W. 47th Pl., Los Angeles. 1915.
- Brown, G. Franklin, Needham, Mass. 1918.
- Brown, Mrs. Herbert, 434 E. 2d St., Tucson, Ariz. 1914.
- Brown, Miss Nellie M., 810 Brockman Bldg., Los Angeles. 1922.



- Brown, Mrs. William C., 945 Orange St., Los Angeles. 1921.  
 Brownlee, Mrs. Marie P., 714 Grosse Bldg., Los Angeles. 1919.  
 Bryan, William Alanson, Museum Hist., Sci., and Art, Los Angeles. 1921.  
 Bryant, Dr. Carl H., Atascadero. 1922.  
 Bryant, Chas. A., Room 1028 S. P. Bldg., 65 Market St., San Francisco. 1922.  
 §Bryant, Dr. Harold C., Museum Vert. Zool., Berkeley. 1910.  
 Buhn, Mrs. Minnie, 1025 Pearl St., Alameda. 1921.  
 Bull, Daniel Bernard, R.D. A, Box 158, San Jose. 1919.  
 Bull, Mrs. D. Bernard, R.D. A, Box 158, San Jose. 1921.  
 Bunker, Paul F., 1913 Woolsey St., Berkeley. 1922.  
 Burk, Genevieve S., 1601 Oxford St., Berkeley. 1920.  
 Burleigh, Thos. D., Univ. Ga., Athens, Ga. 1918.  
 Burnell, Miss Elizabeth, 1029 Spaulding Ave., Los Angeles. 1921.  
 Burnett, W. L., State Agr. Coll., Fort Collins, Colo. 1910.  
 Burnham, Dr. Clark, Bushnell Place, Berkeley. 1907.  
 Burnham, John, Timken Bldg., San Diego. 1920.  
 Burns, Frank L., Berwyn, Pa. 1909.  
 Burns, James R., 645 44th St., Des Moines, Ia. 1922.  
 Burtch, Verdi, Branchport, N. Y. 1910.  
 Cahn, Alvin R., 1117 W. Nevada St., Urbana, Ill. 1922.  
 Calder, James A., Buena Park. 1917.  
 Camp, Dr. Chas. L., Bacon Hall, Univ. Calif., Berkeley. 1909.  
 Campbell, R. A., Huntington Beach. 1922.  
 Canby, Caroline P., San Fernando. 1921.  
 Canfield, Mrs. May, 2875 Clay Ave., San Diego. 1922.  
 Cantwell, George G., 7287 Keystone Ave., Palms. 1915.  
 Cantelow, H. C., 3115 Claremont Ave., Berkeley. 1923.  
 Cantelow, Mrs. E. D., 3115 Claremont Ave., Berkeley. 1923.  
 Carpenter, George I., 129 Dean St., Brooklyn, N. Y. 1920.  
 Carpenter, N. K., 3775 Kite St., San Diego. 1901.  
 Carriger, H. W., 5185 Trask St., Oakland. 1895.  
 Case, Rev. Bert F., East Granby, Conn. 1913.  
 Case, C. M., 306 Blue Hills Ave., Hartford, Conn. 1911.  
 §Chamberlain, C. W., 36 Lincoln St., Boston, Mass. 1912.  
 \*Chambers, W. Lee, Eagle Rock. 1897 (1919).  
 Chaney, Dr. Ralph W., 2611 Keith Ave., Berkeley. 1923.  
 Chapman, Dr. Frank M., Amer. Museum Nat. Hist., New York, N. Y. 1903.  
 Cheesman, M. R., 1328 Gower St., Hollywood. 1919.  
 Cheney, E. S., 1838 4th Ave., Oakland. 1920.  
 Cheney, Miss Mary, 48 Hartford Road, So. Manchester, Conn. 1919.  
 Clabaugh, E. D., 2215 Grant St., Berkeley. 1923.  
 Clark, Josiah H., 702 E. 23d St., Paterson, N. J. 1910.  
 Clay, C. Irvin, Box 353, Eureka. 1910.  
 Cleaves, H. H., Wild Life League of West Virginia, Clarksburg, W. Va. 1921.  
 Clough, Miss M. Pamela, 844 Arlington Road, Berkeley. 1923.  
 Coale, Henry K., Highland Park, Ill. 1907.  
 Coffin, Robert L., Mass. Agr. Exp. Station, Amherst, Mass. 1920.  
 Coggins, Herbert L., 2929 Piedmont Ave., Berkeley. 1910.  
 Cohen, Donald A., 2618 Lincoln St., Alameda. 1901.  
 Cohn, Mrs. Effie C., Key Route Inn, Oakland. 1923.  
 \*§Colburn, A. E., 806 S. Broadway, Los Angeles. 1905 (1915).  
 Cole, Mrs. Arthur H., 260 California St., San Francisco. 1917.  
 Cole, F. R., Route A, Box 177, Redlands. 1922.  
 Cole, John L., R.D. 5, Nevada, Ia. 1922.  
 Compton, Mary J. (Mrs. C. Norman), 6510 1st St. N. E., Seattle, Wash. 1920.  
 Comstock, Dr. John, Southwest Museum, Los Angeles. 1920.  
 Cook, Fred'k. W., 1604 E. Harrison St., Seattle, Wash. 1919.  
 Cooke, Miss M. T., 1328 12th St., Washington, D. C. 1918.  
 Cookman, Alfred, 336 W. Pioneer Drive, Glendale. 1912.  
 Coolidge, Karl R., Box 12, Hollywood. 1922.  
 Cooper, J. S., 827 54th St., Oakland. 1903.  
 Cope, Francis R., Jr., Dimock, Penn. 1919.  
 Coppee, Marie P., Ross, Marin Co. 1921.  
 Cozens, Harold H., 1631 Posen Ave., Berkeley. 1921.  
 Craven, Jesse T., 5315 Roosevelt Ave., Detroit, Mich. 1909.  
 Creager, Marvin H., 634 The Alameda, Berkeley. 1923.  
 Crosby, Maunsell S., Grasmere Farms, Rhinebeck, N. Y. 1911.  
 Crow, Mrs. G. Maurice, Glendora. 1923.  
 Crum, Miss Ethel, Morada Apts., Tulare. 1920.  
 Culver, Geo. B., Stanford University. 1921.  
 Culver, Susan B., 2423 Prospect St., Berkeley. 1914.  
 Cummings, Byron, Univ. Ariz., Tucson, Ariz. 1916.  
 Cunningham, Walter, 3009 Dunham Ave., Kansas City, Mo. 1921.  
 Currier, Ed. S., 416 E. Chicago St., St. Johns Sta., Portland, Ore. 1904.

- Dart, Mrs. Bertha L., South 6th St., Montevideo, Minn. 1922.
- Davenport, Mrs. Elizabeth B., Northern Ave., Brattleboro, Vt. 1911.
- Davenport, Mrs. W. S., 2730 Stuart St., Berkeley. 1922.
- Davidson, Miss Pirie, S. Branch, Univ. Calif., Los Angeles. 1916.
- Davies, A. E., 1327 Grove St., Berkeley. 1920.
- Davis, Dr. Fred B., 220 Grand Ave., Oakland. 1916.
- Davis, Henry W., 10 S. Baton Rouge Ave., Atlantic City, N. J. 1922.
- Davis, John M., 737 M St., Eureka. 1908.
- \*Dawson, W. Leon, R.D. 3, Box 83, Santa Barbara. 1906 (1915).
- Dean, W. F., Three Rivers. 1901.
- Deane, Ruthven, 112 W. Adams St., Chicago, Ill. 1904.
- Deane, Walter, 29 Brewster St., Cambridge, Mass. 1907.
- Dearborn, Dr. Ned, Sackett Harbor, N. Y. 1909.
- Decker, F. R., Kiona, Wash. 1913.
- DeGroot, Dudley S., Normal Hill Center, Los Angeles. 1916.
- Delpont, Mrs. Mary E., 1601 Oxford St., Berkeley. 1923.
- Deweese, Miss Elizabeth, Whitehead Rd. and Marshall St., Norristown, Pa. 1922.
- Dice, Dr. Lee R., Museum of Zoology, Ann Arbor, Mich. 1914.
- Dickens, Charles, Key Route Inn, Oakland. 1923.
- Dickenson, A. B., R.D. 1, Box 11B, San Gabriel. 1916.
- Dickenson, Mrs. A. B., R.D. 1, Box 11B, San Gabriel. 1919.
- \*Dickey, Donald R., 514 Lester Ave., Pasadena. 1910.
- Dill, Dr. Robert, State Sheep Commission, Reno, Nev. 1921.
- Dille, F. M., Valentine, Neb. 1903.
- Dings, G. M., 2161 Ry. Exch. Bldg., St. Louis, Mo. 1920.
- Disney, Dwight R., Box 278A, Rupert, Idaho. 1920.
- Dixon, Joseph, Museum Vert. Zool., Berkeley. 1904.
- Dodge, Laura I., 3031 Elliot St., Long Beach. 1915.
- Dodge, Ralph E., R.D. 9, Box 468, Exeter. 1915.
- Doolittle, E. A., Box 44, Painesville, Ohio. 1918.
- Drachman, Myra, 3031 Elliot St., Long Beach. 1915.
- Du Bois, Alexander Dawes, 327 S. Glenwood Ave., Springfield, Ill. 1911.
- Duprey, H. F., 2056 23rd Ave., Oakland. 1907.
- Durfee, Owen, 727 Madison St., Fall River, Mass. 1911.
- Dutton, P. C., 65 High St., Stone Staffs, England. 1913.
- Dwight, Dr. Jonathan, Jr., 43 W. 70th St., New York, N. Y. 1904.
- Easton, Mrs. Jane F., Torrey Road, La Jolla. 1920.
- Eaton, S. Harrison, Box 653, Lawrenceville, Ill. 1916.
- Edson, J. M., Marietta Road, Bellingham, Wash. 1911.
- \*Eggleston, Prof. Julius W., Cuttingsville, Rutland Co., Vt. 1913 (1919).
- Elmore, Louis A., 2023 Delaware St., Berkeley. 1920.
- Ellis, Mrs. Ella Haines, 910 Gratton St., Los Angeles. 1922.
- Ellis, Ralph, 2421 Ridge Road, Berkeley. 1923.
- Ellis, Ralph, Jr., 2421 Ridge Road, Berkeley. 1923.
- Ellot, Willard Ayres, 1011 Thurman St., Portland, Ore. 1923.
- \*Emerson, W. Otto, Palm Cottage, Hayward. 1920 (1921).
- English, Thomas A., 2001 Haste St., Berkeley. 1923.
- Enochs, Rex P., 3310 W. 10th St., Los Angeles. 1921.
- Esterly, Dr. C. O., Occidental College, Los Angeles. 1908.
- Evans, Ella A., Exeter. 1922.
- Evans, Frank C., Crawfordsville, Ind. 1918.
- Evans, J. Harold, R.D. 4, Box 500, Santa Rosa. 1917.
- Evans, Wm. V., Livingston, Mont. 1920.
- Everhart, Mrs. L. U., Thermal. 1922.
- Evermann, Dr. Barton W., Cal. Acad. Sciences, San Francisco. 1911.
- Falger, Annie M. (Mrs. Wm.), Modesto. 1917.
- Fargo, Mrs. Minerva J., 1632 N. Kingsley Drive, Los Angeles. 1914.
- Farley, Frank La Grange, Camrose, Alberta, Canada. 1923.
- Farnsworth, Dean, 1009 Manning St., Winfield, Kan. 1921.
- Felger, A. H., North Side High School, Denver, Colo. 1920.
- Felton, Mrs. C. N., 216 Pine St., San Francisco. 1916.
- Fenn, Mrs. R. W., Lindsay. 1922.
- \*Ferguson, Mrs. Aurella B., 999 Gramercy Drive, Los Angeles. 1922.
- Ferguson, Mrs. Mary Van E., 1 Orchard Lane, Berkeley. 1915.
- Field, Clyde, 1859 Julian Ave., San Diego. 1919.
- Finley, Wm. L., Jennings Lodge, Ore. 1900.
- Fish, Mrs. Frances Webster, 6215 Chabot Road, Oakland. 1917.
- Fisher, Dr. A. K., Biol. Survey, Washington, D. C. 1904.
- Fisher, Miss Edna M., 2410 Fulton St., Berkeley. 1923.
- Fisher, Miss Elizabeth W., 2222 Spruce St., Philadelphia, Pa. 1910.
- Fisher, Prof. Walter K., Stanford Marine Laboratory, Pacific Grove. 1900.

- Fitzpatrick, T. J., Bethany, Neb. 1913.  
 Fleming, J. H., 267 Rusholme Road, Toronto, Ont., Canada. 1910.  
 Fletcher, L. B., 54 Cotswald Road, Brookline, Mass. 1922.  
 Fletcher, Lyle R., 353 N. Archer St., Norton, Kas. 1920.  
 Flinn, Catherine Mills, 1799 University Ave., Berkeley. 1920.  
 Flynn, Helen, 1546 Shattuck Ave., Berkeley. 1920.  
 Forbush, E. H., State House, Boston, Mass. 1916.  
 Forrest, Earle R., 205 N. Main St., Washington, Pa. 1910.  
 Fortner, John C., Box 496, Brawley. 1910.  
 Fowler, Frederick H., 221 Kingsley Ave., Palo Alto. 1901.  
 Frank, Arthur W., Wash. Exp. Sta., Puyallup, Wash. 1920.  
 Frazer, J. Thomas, Jr., 432 W. Hawthorne St., Eureka. 1920.  
 Frederick, Mrs. Adeline, 1636 Woolsey Ave., Berkeley. 1922.  
 French, Mrs. A. J., Carlton, Ore. 1921.  
 French, James G., The Menagerie, 3628 Saanich Road, Victoria, B. C., Canada. 1918.  
 Frye, Prof. T. C., Univ. Wash., Seattle, Wash. 1919.  
 Fuertes, Louis A., 201 Wyckoff Ave., Ithaca, N. Y. 1904.  
 Fuller, H. A., 430 San Rafael Ave., Pasadena. 1923.  
 Gabrielson, Ira N., 515 P. O. Bldg., Portland, Ore. 1919.  
 Gallup, Frederick Norman, Escondido. 1921.  
 Gamble, Hamilton, 476 8th Ave., San Francisco. 1922.  
 Ganier, Albert F., 2507 Ashwood Ave., Nashville, Tenn. 1921.  
 Gartrell, Geo. N., Summerland, B. C., Canada. 1917.  
 Gault, Benj. T., 564 N. Main St., Glen Ellyn, DuPage Co., Ill. 1905.  
 Gay, Harold S., 200 S. Wilson Ave., Alhambra. 1901.  
 Geiselhart, Miss Josephine, Concord. 1920.  
 Germain, Miss Claire, Balboa. 1915.  
 Giannini, Chas. A., Poland, N. Y. 1919.  
 Giddings, Levi A., 436 Douglas Ave., Salt Lake City, Utah. 1923.  
 Gifford, Dr. Harold, 420 S. 36th St., Omaha, Neb. 1916.  
 Gignoux, Claude, 73 Tunnel Road, Berkeley. 1919.  
 Gilchrist, Francis G., 2223 Parker St., Berkeley. 1920.  
 Giles, Roscoe I., 82 Newton St., Marlborough, Mass. 1917.  
 Gilman, M. French, Banning. 1901.  
 Girvin, F. H., 5635 Melrose Ave., Los Angeles. 1919.  
 Goelitz, Herman, 944 Alameda Drive, Portland, Ore. 1920.  
 \*Goelitz, Walter A., 170 Nunda Blvd., Rochester, N. Y. 1915 (1920).  
 Goethe, C. M., Capital Natl. Bank Bldg., Sacramento. 1915.  
 Goldman, E. A., Biol. Survey, Washington, D. C. 1901.  
 Goldman, Luther J., Biol. Survey, Boise, Idaho. 1902.  
 Goodcell, Mrs. Marion L., 864 D St., San Bernardino. 1914.  
 Grant, U. S., 4th, 639 S. Wilton Place, Los Angeles. 1909.  
 Green, Thos. L., 7076 Franklin Ave., Hollywood. 1921.  
 Grey, Henry, R.D. 2, Box 154A, San Diego. 1901.  
 Griffee, Willet E., R.D. 3, Box 68, Corvallis, Ore. 1919.  
 Grinnell, Dr. Geo. Bird, 238 E. 15th St., New York, N. Y. 1914.  
 \*Grinnell, Hilda Wood (Mrs. Joseph), 2811 College Ave., Berkeley. 1912 (1921).  
 \*Grinnell, Prof. Joseph, Museum Vert. Zool., Berkeley. 1894 (1919).  
 Grinnell, Willard Fordyce, 2811 College Ave., Berkeley. 1921.  
 Gross, Prof. Alfred O., Bowdoin College, Brunswick, Maine. 1923.  
 Guion, Geo. Seth, Napoleonville, La. 1911.  
 Gunn, Miss Amy E., 600 Bush St., San Francisco. 1914.  
 Gunthorp, Horace, Univ. Wash., Seattle, Wash. 1920.  
 Guthrie, Miss Esther, 2201 H St., Sacramento. 1918.  
 Hadeler, E. W., Painesville, Ohio. 1918.  
 Hall, Mrs. Carlotta C., 1615 La Loma Ave., Berkeley. 1915.  
 Hall, Mrs. C. H., 2141 N. Highland Ave., Los Angeles. 1921.  
 Halladay, Daniel S., R.D. 3, Box 201, Anaheim. 1910.  
 Hallinen, J. E., Cooperton, Kiowa Co., Okla. 1921.  
 Hampton, Mrs. Ethel C., 73 Leese St., San Francisco. 1914.  
 Hanaford, A. W., R.D. 9, Box 1210, Los Angeles. 1917.  
 Hands, Frank H., Dos Cabezas, Ariz. 1920.  
 Hann, H. H., Parkdale, Ore. 1909.  
 Hanna, Dr. G. Dallas, Cal. Acad. Sciences, San Francisco. 1921.  
 \*Hanna, W. C., 141 East F St., Colton. 1902 (1921).  
 Harlow, Richard C., 369 Foster Ave., State College, Penn. 1919.  
 Harper, Francis, Cornell Univ., Ithaca, N. Y. 1920.  
 Harris, Mrs. Chas. A., Box 8, Glendora. 1923.  
 \*Harris, Harry, 18 W. 52d St., Kansas City, Mo. 1914 (1919).  
 Harrison, H. M., 319 Penn St., Camden, N. J. 1920.  
 Hart, Cecil, R.D. 6, Box 432, Los Angeles. 1920.

- Hartman, Paul J., 1118½ Maple Ave., Los Angeles. 1917.
- Hartung, Miss Esther, 124 Mill St., Grass Valley. 1923.
- Hathaway, H. S., Box 1466, Providence, R. I. 1912.
- Havemeyer, Henry O., Mahwah, N. J. 1917.
- Hayes, Mrs. F. M., Box 591, Davis. 1919.
- Haynes, Mrs. A. H., 1734 University Ave., St. Paul, Minn. 1921.
- Haywood, J. F., Mather, Tuolumne Co. 1923.
- Head, Miss Anna, 2809 Forest Ave., Berkeley. 1912.
- Heath, Prof. Harold, 1147 Ramona St., Palo Alto. 1919.
- Hedges, Chas. F., Box 24, Miles City, Mont. 1919.
- Hegner, Carl D., 810 Avoca St., Los Angeles. 1914.
- Heineman, Oluf J., 1664 Grove St., San Francisco. 1908.
- Heller, Edmund, Field Museum Nat. Hist., Chicago, Ill. 1894.
- Helme, Arthur H., Miller Place, Suffolk Co., N. Y. 1911.
- Henderson, A. D., Belvedere, Alberta, Canada. 1923.
- Henderson, H. N., 216 E. Philadelphia St., Whittier. 1923.
- Henderson, Dr. H. C., Casitas Road, Carpinteria. 1919.
- Henderson, Junius, 627 Pine St., Boulder, Colo. 1909.
- Henderson, Walter C., Biol. Survey, Washington, D. C. 1918.
- Hendren, Miss Elizabeth, Occidental. 1920.
- Henshaw, Judge F. W., 762 Mills Bldg., San Francisco. 1915.
- \*Hersey, F. Seymour, 6 Maple Ave., Taunton, Mass. 1915 (1920).
- Hersey, L. J., Wray, Colo. 1909.
- Hill, E. R., 815 West 37th St., Los Angeles. 1922.
- Hill, Grace A., Univ. of Calif., Davis. 1922.
- Hill, James H., Box 485, New London, Conn. 1919.
- Hill, Joseph J., 1945 Delaware St., Berkeley. 1923.
- Hill, Willard, Star Route, Wasco, Kern Co. 1918.
- Hilton, Dr. W. A., Claremont. 1921.
- Hoffman, Louis E., Box Cor. Benner and Shults St., Los Angeles. 1920.
- Hoffmann, Ralph, Carpinteria. 1920.
- Hohfeld, Mrs. Edward, 754 3d Ave., San Francisco. 1920.
- \*Holland, Harold M., Box 515, Galesburg, Ill. 1901 (1920).
- Holleman, Ridley, 205 Duffield St., San Antonio, Texas. 1917.
- Hollister, N., Nat. Zool. Park, Washington, D. C. 1920.
- Holman, F. C., Box S, Yosemite. 1914.
- \*Hoover, Prof. Theodore J., Box A, Stanford University. 1898 (1916).
- Horsfall, R. Bruce, R. 6, Box 80, Portland, Ore. 1914.
- Houghton, John D., 152 Suffolk Road, Chestnut Hill, Mass. 1922.
- Howard, O. W., Box 484, Los Angeles. 1895.
- \*Howell, A. B., 770 S. Pasadena Ave., Pasadena. 1908 (1915).
- Howell, Arthur H., 2919 S. Dakota Ave., Washington, D. C. 1916.
- Howell, B. F., Jr., 52 Patton Ave., Princeton, N. J. 1909.
- Howes, Paul G., 46 Auldwood Road, Stamford, Conn. 1910.
- Huber, Wharton, Academy of Natural Sciences, 19th and Race Sts., Philadelphia, Pa. 1915.
- Huddleston, Mrs. Alice M., R.D. 1, Box 539, San Gabriel. 1921.
- Hudson, L. W., 5407 Genoa St., Oakland. 1917.
- \*Huey, Laurence, Natural History Museum, Balboa Park, San Diego. 1909 (1921).
- Hunt, C. J., 5847 W. Superior St., Chicago, Ill. 1919.
- Hunt, Richard, 735 Bryant St., Palo Alto. 1918.
- Hunter, J. S., Box 482, San Mateo. 1903.
- Hurley, John B., 225 East E St., Yakima, Wash. 1921.
- Husher, Mrs. Gertrude H., 821 S. Hope St., Los Angeles. 1913.
- Hyde, Mrs. Chas. Gilman, 2579 Buena Vista Way, Berkeley. 1921.
- Hyde, Mrs. Silkman E., Regena, Idaho. 1922.
- Illingsworth, J. F., Univ. Hawaii, Honolulu, T. H. 1896.
- Ingersoll, Albert M., 908 F St., San Diego. 1895.
- Jackson, Dr. Hartley H. T., Biol. Survey, Washington, D. C. 1921.
- Jackson, Ralph W., R.D. 1, Cambridge, Md. 1917.
- Jacobs, J. Warren, 404 S. Washington St., Waynesburg, Pa. 1909.
- Jacobsen, W. C., 2319 M St., Sacramento. 1916.
- Jaeger, Edmund C., 1462 W. 6th St., Riverside. 1922.
- Jay, Antonin, 1622 Pennsylvania Ave., Los Angeles. 1901.
- Jenney, Chas. F., 100 Gordon Ave., Hyde Park, Mass. 1917.
- Jesurun, Dr. Mortimer, 802 American Ave., Long Beach. 1916.
- Jewett, Stanley G., 582 Bidwell Ave., Portland, Ore. 1909.
- Job, Herbert K., 601 Washington Ave., West Haven, Conn. 1915.
- Johnson, A. C., Whittier Nat. Bank, Whittier. 1919.
- Johnson, Miss Clare E., Room 151, City Hall, San Francisco. 1921.
- Johnson, H. H., Pittsfield, Me. 1920.
- Johnson, Dr. Myrtle E., National City. 1908.
- Jonas, Coloman, 1023 Broadway, Denver, Colo. 1910.

- Jonas, John, 215 W. Park St., Livingston, Mont. 1921.
- Jones, Dr. Lynds, Museum Oberlin Coll., Oberlin, Ohio. 1911.
- Jordan, A. H. B., Everett, Wash. 1911.
- Jordan, Dr. David Starr, Stanford University. 1902.
- Judson, W. B., 826 Washington Bldg., Los Angeles. 1894.
- Kaeding, Geo. L., 227 N. Central Ave., Glendale. 1903.
- Kalmbach, Edwin R., Biological Survey, Washington, D. C. 1923.
- Keefer, Miss Mary Belle, 605 Wallace Ave., Covington, Ky. 1923.
- Keeler, Leonarde, 155 El Camino Real, Berkeley. 1922.
- Kell, Delacourt, Claremont. 1921.
- Kelley, Mrs. Harriet P., Francis Parker School, San Diego. 1917.
- Kellogg, Miss Louise, Box 248, Suisun. 1911.
- Kellogg, Miss Mildred, 2232 Piedmont Ave., Berkeley. 1921.
- Kellogg, Ralph T., Silver City, N. M. 1916.
- Kellogg, Prof. Vernon L., Stanford University. 1901.
- Kelly, Junea W. (Mrs. G. E.), 1311 Grand St., Alameda. 1918.
- \*Kennard, Frederick H., Dudley Road, Newton Centre, Mass. 1911 (1916).
- Kennedy, Clarence H., Zool. Dept., Ohio State Univ., Columbus, Ohio. 1912.
- Kennedy, Miss Eveline, 5330 Pasadena Ave., Los Angeles. 1921.
- Keyes, Prof. Chas. R., Mt. Vernon, Iowa. 1900.
- Kibbe, A. S., 1534 Grove St., Berkeley. 1917.
- Kibbe, Bessie W. (Mrs. A. S.), 1534 Grove St., Berkeley. 1917.
- Kimball, H. H., Seal Beach. 1909.
- Kimball, H. T., 903 Longfellow St., N. W., Washington, D. C. 1923.
- King, Albert H., 3612 N. Griffin Ave., Los Angeles. 1920.
- King, Benjamin H., 1215 Lakeshore Drive, Coeur d'Alene, Idaho. 1921.
- Kirn, Albert J., R.D. 4, Solomon, Kas. 1918.
- Kitchin, E. A., 4014 N. 35th St., Tacoma, Wash. 1917.
- Kitt, W. Stanley, 129 S. 5th Ave., Tucson, Ariz. 1921.
- Kittredge, Joseph, Jr., U. S. Forest Service, Washington, D. C. 1915.
- Kloss, Philip, 24 Greenbank Ave., Piedmont. 1922.
- Kluegel, Mrs. Edward A., Carmel. 1916.
- Knickerbocker, Chas. K., 445 N. Sacramento Ave., Carpenter Sta., Chicago, Ill. 1905.
- Knowlton, Dr. F. H., U. S. Nat. Museum, Washington, D. C. 1910.
- Kofoid, Prof. C. A., Zool. Dept., Univ. Calif., Berkeley. 1909.
- Kohler, Louis S., R.D. 2, Paterson, N. J. 1909.
- Krause, Helena, 820 26th St., San Diego. 1922.
- Krehbiel, Leonard, Box 193, Bishop. 1919.
- Kretzman, Prof. P. E., 3705 Texas Ave., St. Louis, Mo. 1914.
- Kuser, John Dryden, Bernardsville, N. J. 1912.
- Kuykendall, W. A., Eugene, Ore. 1916.
- Labarthe, Jules, 2727 Russell St., Berkeley. 1914.
- La Jeunesse, H. V., 2517 Webb St., Alameda. 1916.
- Lamb, Chester C., 235 W. 27th St., Los Angeles. 1899.
- Lancashire, Sarah (Mrs. J. Henry), 7 E. 75th St., New York, N. Y. 1911.
- Lander, Bessie M., R.D. 1, Box 106, Strathmore. 1920.
- Langstroth, James H., P. O. Box D, Silver City, New Mexico. 1922.
- Lane, Geo. W., Morgan Hill. 1914.
- Langevin, Elmer, 325 S. Broadway, Crookston, Minn. 1922.
- Lano, Albert, 220 E. Lafayette Ave., Fayetteville, Ark. 1920.
- Lastreto, C. B., 260 California St., San Francisco. 1913.
- Laubenfels, Max Walker de, 620 19th St., Huntington Beach. 1921.
- \*\$Law, J. Eugene, Altadena. 1900 (1915).
- \*\$Law, Laura Beatty (Mrs. J. E.), Altadena. 1915 (1919).
- Lawrence, Mabel M., 1750 1/2 W. 24th St., Los Angeles. 1921.
- Layne, J. Gregg, 619 Central Building, Los Angeles. 1912.
- Leach, Frank A., 217 Hillside Ave., Piedmont. 1917.
- Lee, Mrs. Melicent H., El Cajon. 1920.
- Lee, Ren M., 231 N. C St., Tulare. 1922.
- Leggett, Dr. R. M., 2140 9th Ave., San Francisco. 1918.
- Leland, H. J., 200 Currier Bldg., Los Angeles. 1897.
- Leopold, Aldo, 135 S. 14th St., Albuquerque, N. M. 1916.
- Leopold, Nathan F., Jr., 4754 Greenwood Ave., Chicago, Ill. 1920.
- Libby, Miss Gretchen L., 310 2d Ave., Santa Barbara. 1911.
- Lien, Carl, Clallam Bay, Wash. 1917.
- Ligon, J. Stokley, Box 131, Albuquerque, N. M. 1914.
- Lillencrantz, H. T., Rancho Las Cimas, Hollister. 1916.
- Limbirt, R. W., Box 1284, Boise, Idaho. 1921.
- Lindemann, Miss W. C., 1435 8th St., Alameda. 1922.
- Lincoln, Frederick C., U. S. Biological Survey, Washington, D. C. 1922.
- Lindsay, Dr. D. Moore, 808 Boston Bldg., Salt Lake City, Utah. 1915.
- \$Little, Luther, 1403 Garfield Ave., S. Pasadena. 1914.
- Littlejohn, Chase, 1226 Warren St., Redwood City. 1901.
- Livesey, Alice Rose, 373 W. California St., Glendale. 1921.
- Lloyd, Hoyes, 405 Queen St., Ottawa, Canada. 1923.



- Lofftfield, Gorm, Carnegie Institution, Tucson, Ariz. 1918.
- Lombardi, Mrs. M. E., 2249 Piedmont Ave., Berkeley. 1916.
- Loring, J. Alden, Owego, Tioga Co., N. Y. 1914.
- §Love, Guy, R.D. 1, El Cajon. 1913.
- Low, Mrs. Marion Ware, 1645½ Martel Ave., Hollywood. 1922.
- Lueders, Fred H. W., 516 E. Main St., Compton. 1923.
- Lunt, James C., 109 Liberty St., San Francisco. 1922.
- Lusk, Richard D., R. 2, Box 722, San Gabriel. 1915.
- Luther, Clarence H., 8 McIlroy Bldg., Fayetteville, Ark. 1909.
- Lyon, Ray B., Box 186, Paso Robles. 1920.
- MacKaye, David L., Tulare. 1922.
- Mackay, Miss Susan, Cloyne Court, Berkeley. 1923.
- McAtee, W. L., Biol. Survey, Washington, D. C. 1907.
- McBride, Everett F., Box P, Fellows. 1923.
- McCoy, Frank J., Santa Maria Inn, Santa Maria. 1923.
- McDaniel, George H., 234 W. Pratt St., Eureka. 1923.
- McGettigan, Carroll, 2644 Filbert St., San Francisco. 1921.
- \*McGregor, R. C., Bureau of Science, Manila, P. I. 1893 (1916).
- McGrew, Albert D., 5611 Stanton Ave., Pittsburg, Pa. 1920.
- McKeough, Dr. Geo. T., Erie Manor, R.D. 1, Blenkerin, Ontario, Canada. 1922.
- McKibben, J. W., 2522 Piedmont Ave., Berkeley. 1921.
- McKinnon, Ross, Blue Rapids, Kas. 1921.
- McLain, R. B., Box 132, Hollywood. 1897.
- McLean, Donald D., Coulterville. 1916.
- McLean, Robert R., 2904 Granada St., San Diego. 1922.
- McLellan, Antonio, 309 San Francisco St., El Paso, Tex. 1920.
- McLellan, Miss Mary E., Calif. Academy of Sciences, San Francisco. 1919.
- McLeod, Kenneth, Jr., 2324 Vine St., Berkeley. 1923.
- McMullen, Turner E., 551 Bailey St., Camden, N. J. 1920.
- Magee, William A., Jr., R.D. Fruitvale, Box 433, Oakland. 1912.
- Mailliard, Ernest C., Federal Reserve Bank, San Francisco. 1909.
- Mailliard, John W., 230 California St., San Francisco. 1894.
- \*§Mailliard, Joseph, 1815 Vallejo St., San Francisco. 1895 (1920).
- Mannington, Joseph A., 1342 Detroit St., Los Angeles. 1923.
- Marshall, Dr. Benj. M., 2036 D St., Eureka. 1913.
- Marshall, Perry R. F., 7213 Sunset Blvd., Los Angeles. 1920.
- Martin, Mrs. Bertha Davis, 1644 Maltman Ave., Los Angeles. 1920.
- Martin, De Loach, 1223 S. Washington Ave., Marshall, Texas. 1916.
- Massey, Herbert, Ivy Lea, Burnage, Didsbury, Manchester, England. 1909.
- Mead, Mrs. Edwin B., 2618 Etna St., Berkeley. 1920.
- Meade, Mrs. Calvert, Box 161, Carmel. 1916.
- Meadows, Donald C., 231 N. Grand St., Orange. 1919.
- Meeker, Jesse C. A., Box 161, Danbury, Conn. 1907.
- Meister, H. D., Weslaco, Texas. 1909.
- \*§Mershon, W. B., Saginaw, Mich. 1911 (1919).
- Mexia, Mrs. Ynes, 401 Medical Bldg., San Francisco. 1921.
- Michael, Chas. W., Yosemite. 1916.
- Middleton, R. J., Jeffersonville, Pa. 1918.
- Miller, Alden Holmes, 6066 Hayes Ave., Los Angeles. 1923.
- Miller, Mrs. Delphia S., 1523 Tonawanda Ave., Los Angeles. 1921.
- Miller, Frederic W., 935 S. Gaylord St., Denver, Colo. 1922.
- Miller, Dr. Loye Holmes, S. Branch, Univ. Calif., Los Angeles. 1905.
- Miller, Mary Mann, 5928 Hayes Ave., Los Angeles. 1920.
- Miller, Dr. R. C., Dept. Zoology, Univ. Calif., Berkeley. 1921.
- Miller, W. De Witt, Amer. Museum Nat. Hist., New York, N. Y. 1909.
- §Mitchell, H. H., Prov. Museum, Normal School, Regina, Sask., Canada. 1915.
- Mitchell, Dr. Walton I., Paonia, Delta Co., Colo. 1909.
- Mix, Mrs. Arthur J., 1915 W. 8th St., Los Angeles. 1922.
- Moffitt, James, 2737 Webster St., San Francisco. 1917.
- Moore, Miss Nellie, 122 Falcon Ave., Long Beach. 1915.
- Moore, Raymond W., 755 Emory St., San Jose. 1919.
- Moore, Robert T., 46 Mansion Ave., Had-donfield, N. J. 1911.
- Moore, Wm. Warren, 1431 9th St., Eureka. 1921.
- Moran, R. B., 1318 S. Gramercy Place, Los Angeles. 1897.
- More, R. L., Vernon, Texas. 1911.
- Morley, Prof. S. Griswold, 2635 Etna St., Berkeley. 1916.
- Morse, Geo. W., 318 E. 9th St., Tulsa, Okla. 1922.
- Mullen, James L., 1264 Logan Ave., Salt Lake City, Utah. 1915.
- Munro, J. A., Okanagan Landing, B. C., Canada. 1914.
- Murie, Olaus J., 219 7th Ave. S., Moorehead, Minn. 1913.
- Musgrave, Ethel Weatherford (Mrs. M. F.), Box 765, Phoenix, Ariz. 1921.
- Myers, Mrs. H. W., 311 N. Ave. 66, Los Angeles. 1912.
- Myers, Mabel Adelaide, 617 W. Center St., Anaheim. 1922.



- \*Nace, C. A., 171 W. Santa Clara St., San Jose. 1920 (1920).  
 Nash, Herman W., Box 264, Pueblo, Colo. 1922.  
 Neff, Johnson A., Marionville, Mo. 1920.  
 Neilson, Mrs. Katherine, 1419 Versailles St., Alameda. 1920.  
 Newhall, Mrs. Chas. S., 2629 Piedmont Ave., Berkeley. 1916.  
 Nice, Mrs. Margaret Morse, Norman, Okla. 1921.  
 Nichols, J. T., Amer. Museum Nat. Hist., New York, N. Y. 1909.  
 Nicholson, Donald J., Orlando, Fla. 1911.  
 Nicholson, Gordon, W. 7th St., Ontario. 1919.  
 Nicholson, Helen S., 1420 Grant St., Berkeley. 1921.  
 Niedrach, Robert J., 30 Pennsylvania St., Denver, Colo. 1922.  
 Nienburg, Miss Matilda V., 2031 Alameda Ave., Alameda. 1922.  
 Noack, H. R., 309 Perry St., Oakland. 1901.  
 Nokes, Dr. I. D., 1120 Marsh-Strong Bldg., Los Angeles. 1914.  
 Norris, Joseph Parker, Jr., 2122 Pine St., Philadelphia, Pa. 1911.  
 Norris, Roy, 725 N. 10th St., Richmond, Ind. 1911.  
 Norton, Arthur H., 22 Elm St., Portland, Me. 1918.  
 Oberholser, Dr. Harry C., 2805 18th St., N. W., Washington, D. C. 1904.  
 O'Farrell, Mrs. Mabel E., 2403 F St., San Diego. 1917.  
 Ohl, H. C., McKittrick. 1913.  
 Ohlendorf, W. C., 320 E. Stewart Ave., Park Ridge, Ill. 1910.  
 Osgood, Dr. Wilfred H., Field Museum Nat. Hist., Chicago, Ill. 1893.  
 Osincup, Clayton A., 30 W. Montana St., Pasadena. 1922.  
 Osterhout, Geo. E., Windsor, Colo. 1915.  
 Overington, R. Bruce, 220 Golden Gate, San Francisco. 1920.  
 Owen, Virgil W., 832 Beacon St., Los Angeles. 1896.  
 Palmer, Miss Elizabeth Day, 1741 Harvard Blvd., Los Angeles. 1909.  
 Palmer, R. H., Instituto Geologico, Mexico City, Mex. 1915.  
 \*Palmer, Dr. T. S., 1939 Biltmore St., N. W., Washington, D. C. 1903 (1920).  
 Pangburn, Clifford H., 299 Madison Ave., New York City, N. Y. 1920.  
 Parcell, Miss Zulema L., 1633 Orange St., Los Angeles. 1919.  
 Parker, Herbert, South Lancaster, Mass. 1911.  
 Parmenter, Henry E., 526 E. Valerio St., Santa Barbara. 1916.  
 Paroni, Miss Clella A., 2430 Bancroft Way, Berkeley. 1920.  
 Patterson, J. E., Box 478, Ashland, Ore. 1922.  
 Paul, Prof. J. H., 1320 E. 2d St. S., Salt Lake City, Utah. 1915.  
 Paul, Lucius H., 436 Carter St., Rochester, N. Y. 1911.  
 Paulson, Martin C., R.D. 5, Nevada, Ia. 1922.  
 Peabody, Rev. P. B., Blue Rapids, Kan. 1904.  
 Pearson, T. Gilbert, 1974 Broadway, New York, N. Y. 1910.  
 Peck, Prof. Morton E., 244 N. 12th St., Salem, Ore. 1909.  
 Pellew, Marion J., 1637 Massachusetts Ave., Washington, D. C. 1923.  
 Pember, Karl A., Woodstock, Vermont. 1922.  
 Pemberton, J. R., 71 Twin Peaks Blvd., San Francisco. 1900.  
 Pennock, Chas. J., Kennett Square, Philadelphia, Pa. 1909.  
 \*Peyton, Lawrence, R.D. 2, Fillmore. 1909 (1922).  
 \*Peyton, Sidney B., Sespe. 1913 (1922).  
 Phelps, Frank M., 212 E. 4th St., Elyria, Ohio. 1912.  
 \*§Philipp, Philip Bernard, 220 Broadway, New York, N. Y. 1911 (1920).  
 Phillips, C. L., 5 W. Wier St., Taunton, Mass. 1915.  
 §Phillips, Dr. John C., Knobfields, Wenham, Mass. 1911.  
 \*Pierce, Wright M., Box 116, Claremont. 1902 (1919).  
 Pierpont, Philip, Nordhoff. 1913.  
 Pillsbury, Frank O., 1088 Main St., Walpole, Mass. 1911.  
 Pitcher, Mrs. E. C., R.D. I, Box 273, Hayward. 1920.  
 Pope, E. F., Box 113, El Reno, Okla. 1913.  
 Potter, Miss Carolyn B., 1314 Alice St., Oakland. 1920.  
 Potter, Miss Jessica A., 1118 Santee St., Los Angeles. 1922.  
 Powell, Miss Helen, Berkeley Inn, Telegraph and Haste Sts., Berkeley. 1914.  
 Pratt, Helen S., 245 W. Ridgway, Eagle Rock. 1920.  
 Price, A. E., Grant Park, Ill. 1905.  
 Prill, Dr. A. G., Scio, Ore. 1921.  
 \*Pringle, Miss Cornelia C., 1816 Vallejo St., San Francisco. 1915 (1922).  
 Procter, James Norris, Box 188, Santa Paula. 1922.  
 Purdy, William B., Milford, Mich. 1921.  
 Quillin, Roy W., 1025 Summit Ave., San Antonio, Texas. 1921.  
 Racey, Kenneth, 3262 1st Ave. W., Vancouver, B. C. 1921.  
 Raker, Mary E., 1484 E. Sherman St., Portland, Ore. 1919.  
 Rand, F. L., 1108 Arcade Bldg., St. Louis, Mo. 1921.  
 Randolph, Miss Flora A., 2962 Derby St., Berkeley. 1907.  
 Rankin, Edward P., 1814 Marin Ave., Berkeley. 1913.  
 Ransom, Webster H., 708 W. 20th Ave., Spokane, Wash. 1921.  
 Rathbun, S. F., 217 14th Ave. N., Seattle, Wash. 1904.

- Rawson, Charles I., Oxford, Mass. 1918.  
 Ray, Milton S., 118 New Montgomery St., San Francisco. 1899.  
 Raymond, Mrs. C. E., 21 3d St., Hinsdale, Ill. 1921.  
 Reichenberger, Mrs. E. M. B., Amer. Museum Nat. Hist., New York City, N. Y. 1922.  
 Reid, Russell, 208 3d St., Bismark, N. Dak. 1921.  
 Reis, C. O., 1111 Madison Ave., Los Angeles. 1917.  
 Rett, Egmont J., 3060 Larimer St., Denver, Colo. 1922.  
 Reynolds, L. R., 124 Park St., Brockton, Mass. 1913.  
 Rich, Dr. Guy C., 1820 El Cerrito Place, Hollywood. 1911.  
 Rich, Selwyn, Box 55, Claremont. 1919.  
 Rich, Waldo L., Saratoga Springs, N. Y. 1919.  
 Richards, E. B., 128 Chester St., Grass Valley. 1909.  
 Richards, Dr. T. W., U. S. N., 1724 P St. N. W., Washington, D. C. 1908.  
 Richards, W. W., Room 708, 717 Market St., San Francisco. 1915.  
 Richardson, W. D., 4215 Prairie Ave., Chicago, Ill. 1918.  
 Richey, J. Howard, 261 W. Dakota St., Pasadena. 1914.  
 Richmond, Dr. Chas. W., U. S. Nat. Museum, Washington, D. C. 1904.  
 Richmond, Frank, care Richmond Bros., El Centro. 1920.  
 Rigdon, Dr. R. L., 1617 Broderick St., San Francisco. 1921.  
 Riley, J. H., U. S. Nat. Museum, Washington, D. C. 1909.  
 Rittenhouse, Prof. Samuel, Univ. S. Cal., Los Angeles. 1916.  
 Ritter, Prof. W. E., La Jolla. 1901.  
 Robbins, Reginald C., North-east Harbor, Maine. 1921.  
 Roberts, Dr. T. S., Zoological Museum, Univ. Minn., Minneapolis, Minn. 1909.  
 Robertson, Howard, 157 Wilton Drive, Los Angeles. 1896.  
 §Robertson, John McB., R.D. 1, Box 13, Buena Park, Orange Co. 1913.  
 Robertson, Mrs. John McB., Buena Park. 1920.  
 Roe, Mrs. E. D., Pelton Water Wheel Co., 19th and Harrison Sts., San Francisco. 1919.  
 Ross, Donald C., 388 Dearborn St., Pasadena. 1920.  
 Rowan, Wm., Dept. Zool., Univ. Alberta, Edmonton, Alta., Canada. 1921.  
 Rowley, J., 403 S. 1st St., Alhambra. 1909.  
 Rush, Miss Lora Gertrude, 1607 Walnut St., Berkeley. 1920.  
 Russell, Carl P., Box 391, Reno, Nevada. 1923.  
 Rust, Henry J., Box 683, Coeur d'Alene, Idaho. 1911.  
 Sage, Jno. H., Portland, Conn. 1910.  
 Sampson, W. B., 1005 N. San Joaquin St., Stockton. 1894.  
 Sanderson, Miss. Dorothy, 1217 McCadden Pl., Los Angeles. 1922.  
 Sanford, Dr. Leonard C., 347 Temple St., New Haven, Conn. 1915.  
 Sanford, W. H., 919 W. Acacia St., Stockton. 1915.  
 Sapp, Charles, 544 Markwell Bldg., Long Beach. 1922.  
 Saunders, Aretas A., 48 Longview Ave., Fairfield, Conn. 1909.  
 Saunders, Mrs. Kenneth, Creston Road, High Acres, Berkeley. 1920.  
 Saunders, W. E., London, Ont., Canada. 1910.  
 Schafer, Oscar F., 669 Genesee St., Rochester, N. Y. 1917.  
 Schleichert, Ernest K., Mathias Point, Va. 1919.  
 Schlesinger, Mrs. Jane L., 1417 Filbert St., Oakland. 1915.  
 Schneider, Fred A., care Warren Dried Fruit Co., San Jose. 1901.  
 Schneider, Mrs. G. H., 4618 Kingswell Ave., Los Angeles. 1921.  
 §Schneider, J. J., Box 363, Anaheim. 1899.  
 Schussler, Geo. W., 1345 Oak St., San Francisco. 1911.  
 Selater, William Lutley, 10 Sloane Court, London, S. W., England. 1909.  
 Scott, Carroll DeWilton, 1604 7th St., San Diego. 1915.  
 Sefton, J. W., Jr., 650 F St., San Diego. 1923.  
 Sharp, Clarence S., Escondido. 1902.  
 Sharples, Robert P., West Chester, Pa. 1911.  
 Shaw, Prof. W. T., 1000 Thatuna St., Pullman, Wash. 1911.  
 Sheldon, Harry H., care Commercial Tr. & Svgs. Bank, Santa Barbara. 1922.  
 Shelton, Alfred C., Johnston-Shelton Co., Dayton, Ohio. 1909.  
 Shepard, John Alden, Route A, Morgan Hill. 1919.  
 Shepherd, A. R., 457 W. Burchett St., Glendale. 1920.  
 \*Sherman, Althea R., National, via McGregor, Iowa. 1911 (1916).  
 Sherwood, Jack, Box 264, Salinas. 1923.  
 Shiras, George, 3d, Stoneleigh Court, Washington, D. C. 1914.  
 Shupee, George C., Box 964, San Antonio, Texas. 1920.  
 Silliman, Edmund, Alisal and Ryker Sts., Salinas. 1918.  
 Silliman, O. P., 220 Salinas St., Salinas. 1913.  
 Simmons, George F., 701 Holman Ave., Houston, Texas. 1913.  
 Simonds, Dr. Paul E., 304 Loring Bldg., Riverside. 1922.  
 \*Skinner, M. P., Summerville, So. Carolina. 1915 (1920).  
 Slack, Mrs. Nina M., 608 Prospect Ave., So. Pasadena. 1923.

- Sloanaker, Jos. L., 907 W. Mansfield Ave., Spokane, Wash. 1910.
- Smith, Allyn G., 1825 Hopkins St., Berkeley. 1909.
- Smith, Austin Paul, Apartado 412, San Jose, Costa Rica. 1907.
- Smith, A. Russell, Mt. Carmel Ave., North Glenside, Penn. 1919.
- Smith, C. R., 563 42d Ave., San Francisco. 1917.
- Smith, Prof. Frank, 1005 W. California Ave., Urbana, Ill. 1911.
- Smith, Franklin J., Box 98, Eureka. 1913.
- Smith, Horace G., 2918 Lafayette St., Denver, Colo. 1914.
- Smith, Napier, Bank of Montreal, Verdun, Quebec, Canada. 1919.
- Smoll, P. A., 822 Monument St., Colorado Springs, Colo. 1922.
- Smyth, Mrs. W. H., Fernwald, head of Dwight Way, Berkeley. 1918.
- Snyder, Prof. J. O., Box 775, Stanford University. 1900.
- Spaulding, Prof. M. Herrick, Agr. Coll., Bozeman, Mont. 1918.
- Stafford, Walter A., 31 Park Way, Piedmont. 1917.
- Stanford, Miss Mabel A., Box 124, Claremont. 1921.
- Steinbeck, William, 1029 N. Hunter St., Stockton. 1897.
- Stephens, T. C., Morningside College, Sioux City, Iowa. 1914.
- Stephenson, Miss Omie, Monte Vista, Colo. 1922.
- Stone, Geo. E., Box 371, Carmel. 1912.
- Stivers, Dr. C. G., 406 Auditorium Bldg., Los Angeles. 1914.
- Stoddard, H. L., Public Museum, Milwaukee, Wis. 1914.
- Stone, D. D., R.D. 3, Oswego, N. Y. 1909.
- Stoner, Emerson A., Box 444, Benicia. 1918.
- Storer, Miss Mary S., 467 San Pablo Ave., Fresno. 1914.
- Storer, Tracy I., Museum Vert. Zool., Berkeley. 1910.
- Stormont, W. P., 219 W. Ave. 51, Los Angeles. 1917.
- Stow, Harry P., 1617 Central Ave., Alameda. 1921.
- Strauss, Alex., Banning. 1922.
- Streator, Clark P., 16 Mason St., Santa Cruz. 1919.
- \*§Strong, W. A., 41 Grand Ave., San Jose. 1912 (1920).
- Strong, Wm. Duncan, 2220 Piedmont Ave., Berkeley. 1921.
- Stuart, Geo. H., 3d, 923 Clinton St., Philadelphia, Pa. 1913.
- Sugden, J. W., 47 S. 8th W. St., Salt Lake City, Utah. 1915.
- Suits, Clarence L., 149 Fairmont Ave., Eagle Rock. 1920.
- Swales, B. H., U. S. Nat. Museum, Washington, D. C. 1906.
- Swarth, Harry S., Museum Vert. Zool., Berkeley. 1897.
- Sweeney, Joseph A., U. S. Forest Service, Nenzel, Neb. 1912.
- Swenk, Prof. Myron Harmon, 1410 N. 37th St., Lincoln, Neb. 1916.
- Tanner, V. M., Dixie Normal Coll., St. George, Utah. 1919.
- Taverner, P. A., Zool. Div., Geol. Survey, Ottawa, Ont., Canada. 1909.
- Taylor, E. F., Grass Valley, Nevada Co. 1910.
- Taylor, Mrs. H. J., 1711 Douglas St., Sioux City, Iowa. 1920.
- Taylor, Jesse H., 210 Myrtle Ave., Eagle Rock. 1919.
- Taylor, L. E., R.D. 2, Reno, Nev. 1897.
- Taylor, Lionel V., Kelowna, B. C., Canada. 1921.
- Taylor, Dr. Walter P., Box 402, University Station, Tucson, Ariz. 1905.
- Teachenor, Dix., 510 Rialto Bldg., Kansas City, Mo. 1922.
- Tenney, Vernon L., 2536 Etna St., Berkeley. 1922.
- Terrill, L. McL., 44 Stanley Ave., St. Lambert, Que., Canada. 1911.
- Test, Dr. Louis A., 222 North St., W. Lafayette, Ind. 1908.
- \*§Thayer, John E., Box 98, Lancaster, Mass. 1906 (1914).
- Thomas, Mrs. C. R., 1605 Rose St., Berkeley. 1923.
- Thomas, C. R., 1605 Rose St., Berkeley. 1923.
- Thomas, Geo. C., 3rd, 1014 Crescent Drive, Beverly Hills. 1922.
- Thomas, Granville E., 1533 Spruce St., Berkeley. 1923.
- Thompson, Albert E., Box 712, Blythe. 1923.
- Thompson, Mrs. H. F., 817 S. Spring St., Los Angeles. 1922.
- Thompson, J. Walcott, 527 E. 1st S. St., Salt Lake City, Utah. 1918.
- Thomson, Miss Isabel A., 5939 Shafter Ave., Oakland. 1918.
- Thowless, Herbert L., 255 Fourth St., Newark, N. J. 1919.
- Tindall, Charles W., 912 N. Noland St., Independence, Mo. 1920.
- Todd, W. E. Clyde, Carnegie Museum, Pittsburgh, Pa. 1909.
- Tonkin, George, Biol. Survey, Baker, Ore. 1920.
- Torrey, Frederic C., 1 Canyon Road, Berkeley. 1921.
- Treganza, A. O., 522 S. 13th St. E., Salt Lake City, Utah. 1907.
- Treganza, Mrs. A. O., 522 S. 13th St. E., Salt Lake City, Utah. 1915.
- Trenor, Thomas, Hotel Congress, San Francisco. 1913.
- Trescot, E. B., R.D. 4, Box 221, Petaluma. 1915.
- Trewhella, James S., Montebello. 1922.
- Trippé, Thomas M., Howardsville, Colo. 1911.
- Trumbull, J. H., 39 Farmington Ave., Plainville, Conn. 1911.

- \*Tyler, John G., P. O. Box 173, Fresno. 1905 (1920).
- Tyler, Dr. Winsor M., 522 Massachusetts Ave., Lexington, Mass. 1914.
- Unglish, W. E., Gilroy. 1910.
- Van Cleve, H. R., 539 Mer. Nat. Bank Bldg., Los Angeles. 1922.
- Van Denburgh, Dr. John, 240 Stockton St., San Francisco. 1916.
- Van Dyke, Mary Ames, 1545 Le Roy Ave., Berkeley. 1920.
- Van Fleet, Clark C., Box 468, Santa Rosa. 1906.
- Van Gaasbeek, Miss Florence M., 2429 Chan-ning Way, Berkeley. 1921.
- §Van Rossem, Adriaan, 3459 S. Arlington St., Los Angeles. 1909.
- \*Van Straaten, H., Het Veldhuis, 8 Denner-sweg, Velp, Holland. 1918 (1919).
- Vorhies, Chas. T., Univ. Ariz., Tucson, Ariz. 1916.
- Wachtel, Elmer, Box 103A, 1155 Linda St., Pasadena. 1922.
- Wagner, Edward H., 527 San Joaquin St., Stockton. 1922.
- Walker, Alex., Blaine, Ore. 1911.
- Walker, Ernest P., Biol. Survey, Juneau, Alaska. 1910.
- Wanzer, James Olin, City Manager, Marys-ville. 1921.
- Ward, F. H., 18 Grove Place, Rochester, N. Y. 1915.
- Warmer, Charles A., 1310 Baker-Detwiler Bldg., Los Angeles. 1920.
- Warmer, Mrs. Edna R., 2549 Beechwood Drive, Los Angeles. 1921.
- Warren, E. R., 1511 Wood Ave., Colorado Springs, Colo. 1909.
- Waterhouse, John Thomas, care Alexander and Baldwin, Ltd., Honolulu, T. H. 1921.
- Wear, Miss Winifred N., 253 Coast Ave., Fresno. 1909.
- Weber, J. A., Moore and Grand Aves., Leo-nia, N. J. 1915.
- Webster, Mrs. Lawrence J., Holderness, New Hampshire. 1923.
- Wegeforth, Dr. Harry M., 210 Maple St., San Diego. 1920.
- Weiser, Charles S., 105 W. Springettsbury Ave., York, Penn. 1920.
- Welch, L. W., 1845 Olive Ave., Long Beach, 1911.
- Welsh, Joseph, Pasadena Hdw. Co., Pasa-dena. 1917.
- Wetmore, Dr. Alexander, Biol. Survey, Washington, D. C. 1909.
- Wheeler, Mrs. J. W., 403 15th Ave. N., Seat-tle, Wash. 1912.
- Wheeler, Roswell S., 4017 Everett Ave., Oakland. 1894.
- White, Halsted G., 1437A Walnut St., Berke-ley. 1914.
- Whitney, Miss Margaret W., 1563 N. Ray-mond Ave., Pasadena. 1919.
- Whittle, Charles L., 50 Congress St., Bos-ton, Mass. 1922.
- Widmann, Berthold, 4621 Wesley Ave., Los Angeles. 1923.
- Widmann, O., 5105 Enright Ave., St. Louis, Mo. 1904.
- Wilcox, Mrs. Lydia, 10 Latona St., San Fran-cisco. 1921.
- Wilder, H. E., Carlotta, Humboldt Co. 1909.
- Willard, B. G., 51 Fresh Pond Parkway, Cambridge, Mass. 1910.
- Willard, F. C., Farmingdale, Long Island, N. Y. 1905.
- Willett, Geo., Craig, Alaska. 1905.
- Williams, John, 222 Brown St., Iowa City, Iowa. 1918.
- Williams, R. F., 218 Inwood Ave., Upper Montclair, N. J. 1919.
- Williams, Ralph B., San Ysidro Ranch, Santa Barbara. 1922.
- Williams, Robert W., Tallahassee, Fla. 1914.
- Wilson, Rev. Francis M., Beaumont. 1921.
- Wolfe, Lieut. L. R., 26th U. S. Inf., Platts-burg Barracks, N. Y. 1921.
- Wood, Dr. Casey A., 7 West Madison St., Chicago, Ill. 1916.
- Wood, Dr. Clifford H., Glendora. 1922.
- Wood, Jesse J., 330 W. Micheltoreno St., Santa Barbara. 1912.
- Wood, Mrs. Mildred Tiffany, Hyampom, Trinity Co. 1921.
- Wood, Norman A., Museum Zool., Ann Ar-bor, Mich. 1916.
- Woodruff, Frank M., Chicago Acad. Sci-ences, Chicago, Ill. 1906.
- Woodruff, Regina, Whittier College, Whit-tier. 1920.
- Woods, Robert S., 919 S. Bonnie Brae, Los Angeles. 1920.
- Woodward, C. H., 4129 Ingalls St., San Di-ego. 1920.
- Wright, Curtis, 2943 Avalon Ave., Berke-ley. 1916.
- §Wright, Frank S., 14 Cayuga St., Auburn, N. Y. 1910.
- Wright, Howard W., 830 N. Orange Grove Ave., Pasadena. 1921.
- Wueste, Rudolph, Lower Otay Dam, Bonita. 1901.
- \*Wyman, L. E., Museum Hist., Sci., and Art, Los Angeles. 1908 (1920).
- Wythe, Margaret W., Museum Vert. Zool., Berkeley. 1912.
- Yost, Mrs. Myrtle K., 2831 N. Broadway, Los Angeles. 1923.
- Young, Pauline Rodgers, Canille, Santa Cruz Co., Ariz. 1918.
- Zahn, Otto J., 2115 Estrella Ave., Los An-geles. 1896.
- Zahn, Mrs. Francis M. Harmon, 2115 Estrel-la Ave., Los Angeles. 1912.
- Zech, Miss Lillian, 335 W. Highland Ave., Redlands. 1916.
- Zerlang, John, 2634 F St., Eureka. 1918.
- Zerlang, Lawrence, 524 W. Hawthorne St., Eureka. 1918.
- Zinn, Zola, 4002 39th St. S. W., Seattle, Wash. 1921.







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10301-10306	23656	45001-45020	52201-52230
11521-11527	24801-24875	45617-45622	54831-54843
12336-12396	28811-28820	47166-47167	55031-55039
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Glaucous-winged Gull

### In California

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House Finch	Green-tailed Towhee	Western House Wren
Gambel Sparrow	California Shrike	Plain Titmouse
Nuttall Sparrow	Hutton Vireo	Wren-Tit
Golden-crowned Sparrow	Audubon Warbler	Ruby-crowned Kinglet
White-throated Sparrow	Macgillivray Warbler	Western Gnatcatcher
Junco	Dipper	Hermit Thrush
Song Sparrow	Mockingbird	Varied Thrush
Fox Sparrow	California Thrasher	

### In Montana

Spotted Sandpiper	Black Towhee	Western House Wren
Black-billed Magpie	Yellow Warbler	Robin
Western Chipping Sparrow	Catbird	Mountain Bluebird

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